Educ 1201. Managing Planet Earth. 3 semester credits.
(revised 12/2013)

General overview:

This course is designed to give you a broad overview of environmental issues that impact you, this nation, and the world. It asks you to interact with the material that you read and to give your opinions and discuss how you personally are contributing to either the problem or the solution. Students who have taken the course report that it has helped them become better stewards of the environment.

Students report that they like the book – it is well written and interesting. They advise that the opening chapter or two can be a bit depressing and overwhelming but to hang in there on the reading and assignments. Once the author's options are more fully described for Plan B 4.0, they feel much better about the book, and indeed, their future.

General Instructions:

Welcome to Managing Planet Earth (hereafter MPE).

This course has no course meetings, no exams, and no deadlines except for the one imposed by the University and enforced by the Department of Education. No incompletes can be given except for medical emergencies. You must be assigned a grade at the end of the semester. So read the section on the grading contract carefully because you will find you do have options to complete some of your course work after the end of the semester and improve your grade.

All written assignments for this course are to be completed in hard copy and turned in to the instructor either by dropping them off in the Department of Education office, 150 EduE, or mailing them to his home address. You are requested to turn in assignments as you complete them, not leave them all to the end of the semester.

When you turn in assignments include the following on the top left of the front sheet:

Name
E-mail address
Title of Assignment
Semester of Enrollment

Example:

Mary Smith
smith0007@d.umn.edu
Plan B 4.0 Lesson #1, Chapter #1
Spring 2014
You can work independently or you can work as a team with another student and turn in joint assignments. If you work as a team, turn in one assignment per team. Most students, however, have chosen to work independently.

Do check your email account frequently. You will receive communications from the instructor via e-mail regarding interesting events, readings, reminders of University deadlines, corrections or additions to the course manual, and the like.

Grading Contract:

There are no scheduled class meetings and no exams. You select a grading contract that fits your needs. You work at your own pace. You can renegotiate your grading contract at any time. You can select a C for example, and later decide to go for an A. Or you can start out planning on an A and then find yourself in a time-bind and need to settle for a C. Just let the instructor know of your plans.

There are grading regulations now being enforced by the University and by the Department of Education that state that there will be no I grades given except for medical emergencies. But, if you read the grading contract carefully you will find that you can turn in work after the end of the semester and improve your grade.

For example. You decide you want and A for this course. But life conspires against you and get behind your timetable. You face the end of the semester and you have not completed the entire grading contract. And you must get a grade, not an I. You realize you have done 5 assignments. So you settle for a D. Not a great grade but it is better than an F. You know you have time during the early summer to complete the rest of the grading contract – which you do. Once all the assignments are successfully completed, I will change your grade from a D to an A. All signs of a D on your transcript will disappear and only the A will remain.

If any of this confuses you, drop me an email with your questions and I will try to answer them.

The grading contract is designed to let you, the student, decide how hard you want to work in this course. The more quality effort the higher the grade.

The Grading Contract:

F: Do nothing.
D: Finish 50% of the C contract (5 assignments from Plan B 4.0.)
C: Complete all assignments from Plan B 4.0. (All 10 assignments from Plan B 4.0)
B: Complete the C contract and complete one honors assignment.
A: Complete the C contact and complete two honors assignments.
Each assignment in the C contract has a series of questions based on one of the chapters in the book, *Plan B 4.0* by Lester Brown. You complete the assignments by writing out your answers using standard writing protocols as taught in any basic English composition course. Each assignment requires 5 – 7 pages of double spaced composition. Answer the questions in order. Do not rewrite the question in your paper. Write in paragraph form.

Prepare assignments in hard copy. Turn in assignments as you complete them to the Department of Education, 150 EduE. There is a tray on the counter as you enter the dept office with a sign on it that says “Student Assignments”. Be sure you put a post-it note on it with my name on it so it gets delivered to my department mail box.

**Honors Assignments:**

You have wide latitude in selecting honors assignments. Pick something that will interest you and expand your knowledge.

Clear your idea(s) for honor(s) assignments with me before you begin. When you get a bright idea, jot it down on e-mail and send it to me.

Most honors assignments result in a written report.

Honors assignments cover a wide variety of activities. Many students take on a hot topic like nuclear energy, alternative energy sources, invasive species, pollution, water supply, and the like.

Some students visit and write up their reactions to a visit to an environmental learning center like Wolf Ridge, or the Western Lake Superior Sanitary District treatment plant, one of the most sophisticated in the country, or the Environmental Protection Agency Lab in eastern Duluth, or a high tech production facility like 3 M.

Some students select an environmental book like Al Gore’s, *An Inconvenient Truth*, or that classic that started the environmental movement by Rachael Carson, *Silent Spring*. Some students attend an environmental conference and write up their experience and reactions.

Any of these honors activities requires a write-up of 5 – 7 pages.

If you have questions or need advice, do not hesitate to e-mail me.

I do not have an office on campus so use email, or if you prefer, the phone, to contact me.

**The Book for the C Grading Contract:**

The book selected for the C grading contact is: *Plan B 4.0*. It is written by Lester Brown, a highly respected environmentalist. The book is available in the UMD Bookstore or
from any commercial bookseller such as Barnes and Noble or Amazon.

Previous students who have read the book give it excellent marks for both content and readability. End-of-course student evaluations have been excellent.

Assignments related to the book are found in this course manual.

Registration:

Registration for this course follows the standard protocols for any credit course at UMD. You may have friends who recall when the course was offered through UMD Continuing Education. No more. Continuing Education at UMD can no longer offer credited courses.

Instructor:

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**Educ 1201 – Assignment #1 from Plan B 4.0, Chapter 1**

**Instructions:** All the assignments use the same basic guidelines. There are questions for you to ponder and then write your answers. Use prose writing, double spaced, in answering the questions. Do not repeat the questions in your paper, include just your answers. Answer the questions in order. Answer all questions. The assignment length is 5 – 7 pages. The length is deliberate to encourage to think about your answers and to expand on your ideas and observations.

1. The author speculates that world food supply is the weak link in our civilization. If 50 years ago the world had enough food, why the shortage now? And what are the variables that put increasing pressure on food supply?

2. Food shortages put a pressure on the cost of food. As food prices have gone up have you made any adjustments in your typical diet to accommodate to those rising prices? Give some examples. And if you have not made any adjustments, what has made it possible for you to continue your typical food lifestyle?

3. Food politics is a fascinating issue. Rich countries buy up products and land in other countries, often poorer countries, to insure that they, the wealthier countries, have
enough food to supply their own citizens. So how would you react if you found that a large Chinese multinational company had purchased thousands of acres of rich farm land in the Minnesota River valley to the purpose of growing and shipping food exclusively back to China? Or what is your reaction to the purchase of America's largest pork producer by a Chinese company? What would you propose as a political solution to such a development(s)?

4. The author talks of a “Ponzi Scheme” in food, water, and soil use. What does he mean by that term? What are some examples that he gives, or that you can think of in your own experience or studying?

5. We live in a land with the appearance of amazing water resources. But water scarcity is a major problem in many parts of the globe. What are some of the areas of the world where the lack of water is most severe and what are the consequences of that shortage? OK, so you may have thought about Saudi Arabia. If you were one of the Saudi rulers in charge of assuring adequate water for the future of your citizens, what might you do to insure supplies?

6. What is a “failing state”? Name a few places in the world that come to mind that have become failing states. Pick one and speculate on what are the causes that have lead to that country to become a failing state. Do you worry that the United States might someday become a failing state?

7. So this brings us to Lester Brown's Plan B (now in version number four – the reason for the book being titled Plan B 4.0). What are the major parts of Brown's Plan B, a plan to lead the world from a non-sustainable world to a sustainable world? What gives you confidence that we can become a sustainable world? What gives you little confidence that a sustainable world is possible?

Educ 1201 – Plan B 4.0 Chapter 2 Assignments

Instructions:

Use standard prose, double space, in writing your answers. Do not rewrite the questions in your report, just your answers 5 – 7 pages in length.

Questions:

1. You drink about 4 liters (a liter equals about a quart for you non-science majors) of water a day but you eat what takes 2000 liters of water per day to produce. So, what are the sources of water that you typically consume each day? And where would you speculate that the water comes from to produce the food you typically eat each day?

2. Much of the world is losing top soil. Haiti is the current case study for a country that has chopped down its forests and eroded its top soil - and now the earthquake adds to its
misery. What is your prediction of what will happen to Haiti in the next year, next 10 years, next 50 years?

3. Desertification, turning cropland into desert, is a disastrous phenomena. Discuss the situation in China and Brazil. Why is the crop land disappearing? How might the situation be reversed?

4. A number of countries are facing a scarcity of water and and cannot produce enough food to supply the population. Suppose you were placed in charge of planning for future food supplies in a country with food shortages. Outline some of your plans.

5. Water wars. Consider the over-allocation of the Colorado River in the U. S. Who will win, the farmers or the city dwellers? Suppose that you have been given the responsibility for resolving the conflict. What are some of your ideas?

6. The price of grain is tied to the price of oil. How come? What is the price of oil now (per barrel)? If it climbs will over $100 per barrel how might that impact your own diet?

7. Where do you stand on the debate of using grain to make fuel (ethanol) for cars and trucks? A good idea? A bad idea?

8. Rising populations create enormous pressures on the environment. So how does one control population? People die for lack of water and food. Disease tales millions. Suppose you have become the United Nations commissioner for population control. What are some of your plans? And where would you start?

9. A tough chapter. Why are you optimistic or pessimistic about the future of our planet?

1201 B 4.0 #2 1–01

Questions:

Comments: The rapid development of fracking (the process of pumping high pressure water, sand, and solvents into the ground) and deep horizontal drilling (often extending for a mile) have changed the picture of the supply of oil and natural gas in the United States recently (this largely happened since the author wrote this chapter). Some refer to
the United States as the new Saudi Arabia of oil. So keep this in mind as you read this
chapter and answer the questions.

1. Suppose the sea levels do rise 3 feet (the conservative estimate) by the end of the
century, speculate on how places like New York, Washington D. C., and Miami will be
impacted and how they might choose to adapt. Consider what the super storm Sandy did
to New Jersey and New York City. What are some of the lessons from that storm that are
being implemented to cope with the next storm, or higher ocean levels. And then what
happens to these cities if the oceans keep rising, say another three feet in the next half
century?

2. The count of parts per million, ppm, of CO2 in the atmosphere in pre-industrial
revolutionary days was about 270 ppm. Now is it is about 380ppm. If it gets to 450 –
600 ppm things get drast in terms of global climate change. Based on what you have
read what would be some likely impacts of the changes in five of your favorite places.
Identify them and predict the changes.

3. The author talks about a “tipping point”. What is a tipping point. Give a couple of
examples.

4. What is happening to the glaciers? The term “albedo effect” is introduced. What is it
and how does it account for more rapid warming in the polar regions?

5. How is the rate of glacier melt and water supply for food production related in
countries like China and India?

6. Minnesota up north is mining and forest products but down south and west is
agriculture. If global warming accelerates how might the farming areas be impacted? Do
you have any family, or extended family, in the farming business and how would it
impact them?

7. We are an economy based largely on coal and oil but that is changing with the
technology of fracking and deep horizontal drilling. What does the author say about the
prospects for the future supply of oil and the future use of coal? How does the most
recent information on fracking and horizontal drilling change the outlook as presented by
the author?

8. How are you feeling right now about the future of our planet? Are you optimistic that
some things can be done to reverse the trends that threaten the long term stability of the
planet? The author forecasts what Plan B will discuss in future chapters. Obviously it
will take something other than conventional thinking. Where do you think that the policy
makers, politicians, scientists, etc. will come from that can engage in the unconventional
thinking that Plan B will require? Might you be one of those unconventional thinkers and
planners?
Questions:

Comments: LED lights have made significant advancements and the price is dropping. One advantage of LED lights is that most of them can be dimmed (unlike most fluorescent lights) and they can last up to 25,000 hours. The LEDs convert most of the electricity into light, not heat as do incandescent bulbs. For long use applications, LED lights are a wise investment. For college students who likely are renting and planning moving within a year or two LED lights may not be cost effective. That is something for you to calculate in your situation.

1. This chapter is all about increasing energy efficiency. So – what have you done in your personal lifestyle and in your living arrangements to improve your energy efficiency over what it was last year, or the past two years, or since you started college?

2. The compact fluorescent light (CFL) can save about 80% of the energy over the incandescent light bulb to produce the same amount of light. So what has been your experience in using CFL’s? Where do you have them? Why have you not used them? How about your family use of CFL’s? What about your roommates (if you have some), do they cooperate in using CFL’s? What are downsides of CFL’s?

3. What has been your experience with using LED’s? Where around the city have you noticed LED’s? What about the campus? In automobiles?

4. Where have you noticed the use of motion sensors to turn on, or off, lights? Where and how well did they work?

5. How efficient are the appliances that you typically use – consider at college and at home? Where could you make improvements in the efficiency with new appliances in your present living situation, even if you are renting? What are factors that would make prohibitive to switch to more efficient appliances?

6. LEED stands for Leadership in Energy and Environmental Design. How many buildings at UMD are LEED certified? Have you worked in a LEED building in any of your work experiences or internships? What has been your experience?

7. Hybrid cars and electric cars hold great potential for saving energy. Currently the Tesla S, an all electric car, has the highest customer satisfaction rating in Consumer Reports most recent survey. What has been your experience with either a hybrid car or an
all electric car? What would it take to convince you to buy one in the future?

8. China has just taken the lead in developing high speed train service. The U. S. lags well behind other countries in developing high speed rail. What do you think it will take for the US to catch up in this area?

9. Recycling and reusing raw materials can save enormous amounts of energy. How well do you do in your personal recycling habits? Could you improve? What kinds of incentives would it take for you to recycle almost all of your potentially recyclable material?

10. Bottled water is very popular but uses amazing amounts of energy and raw materials. When Duluth water supply is so good, why is so much bottled water sold on the campus? How about you, do you use bottled water? Why and in what circumstances?

11. What is meant by the author when he discusses “smart grids”. Do you, or any of your family, take advantage of a smart grid technology by purchasing lower cost electric power during “off peak” hours for water heating, house heating, or air conditioning?

12. Do you think that Brown's goal of offsetting the anticipated 30% growth in power consumption can be achieved by 2020? And what will be your contribution to meeting that goal?

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Plan B 4.0, Lesson #5, Chapter 5.

Questions:

1. The Plan B 4.0 goal is to switch from carbon-based energy to carbon-free energy by 2020. That's just 6 years off. How about a date of 2030 (closer to the elapsed time when the author wrote this chapter) Can it be done? What are the hurdles? What could make it happen? What might be your role in making it happen?

2. Wind energy is the author's energy source of choice. But what happens when the wind doesn't blow? Then what? How do you solve that problem?

3. Any idea where the closest wind farm is to UMD? UMD gets it electrical energy from Minnesota Power. Check out their web site for wind power to answer the question. Also check out the big MP wind development in North Dakota and the direct current transmission line that gets the power to Minnesota. What percent of total electric generation capacity does MP intend to get from renewables (wind, hydro, biomass,
solar)? Where one might be the closest wind farm to your home town?

4. Investing in alternative energy sources is usually a cost calculation. It makes economic sense to invest in alternative energy (or energy saving) if it can be paid back in about 5 years. What's the payback period for a family in India switching from kerosene lamps to solar powered lamps? What would it take to make a 100% switch to solar for a culture like that?

5. Big scale solar plants have to have either a way to store electricity for use when the sun goes down – or have something else available. Suppose you were the CEO of a solar plant. What would be your strategy for supplying power after the sun sets?

6. What is your experience, or your family, or extended family, with solar power?

7. Geothermal energy is intriguing. Iceland currently heats about 90% of its homes from geothermal energy. Where in the U. S. would you expect to find geothermal sources that are financially attractive?

8. What are the arguments against the use of corn for making ethanol as a fuel source? What is your opinion regarding the State of Minnesota mandate to use ethanol in gasoline mixtures?

9. The author gives modest but inventive attention to hydro power. Recalling your elementary school geography, where are the nation's largest dams that generate electricity?

10. Getting power from the new non-carbon sources to where it is needed will require new electrical transmission lines. That can be a political mess since no one usually wants a heavy duty transmission lines in their backyard. So, if you were the new Secretary of Energy for the US how would you solve this dilemma?

11. You are halfway though the book at this point. Do you think that the author's proposals so far are reasonable? What are the chances that Plan B 4.0 proposals will be adopted by most individuals, and, in the case of big proposals, adopted by congress?
Comments: Take a deep breath. You are halfway through the C contract. And five successful assignments will earn you a D grade which is a passing grade but not likely something good enough for the long term on your transcript. But if the end of the semester is facing you and this is as far as you have gone, remember that this course runs on a contract grading system and you can take a D now (I am not allowed to give an I grade except for medical reasons) and then you can submit more assignments (and honors projects) later and your grade can be changed to something higher. Sweet deal. If you have questions about all of this, do not hesitate to email me with your questions.

Questions:

1. The author talks of cities built for people compared to cities built for automobiles. How would you evaluate Duluth as a city based on the transportation variables described in Plan B 4.0? If your hometown is different from Duluth, how would you evaluate that city (or town) on those same variables? How would you evaluate the UMD campus on those variables?

2. Describe an experience that you have had in spending time in a city that had extensive public transportation (like Washington D.C., for example). By contrast, describe an experience that you have had in spending time in a city that had been developed with the automobile in mind (like Atlanta, GA, for example).

3. Water use in a city is a big problem in many cities (unlike Duluth that, at present, has adequate water supplies and an excellent water treatment system and a waste treatment system). But you likely have been to places where water for waste treatment was not available. Describe the situation and the experience.

4. Examine the self-composting toilet either by looking up the Biolet on the web, or maybe you have had direct experience with such a device. What is your impression? Would you imagine one in your future? Is this part of the solution when water gets scarce in most high density cities?

5. UMD has adopted Google and Gmail for internet service to serve the campus community. Do you like the Gmail service? If you had used a different service in your past, is Gmail better, same, or worse? Comment.

6. The city of Duluth is vying for government grants to help construct a high speed rail system between the city and the Twin Cities. What do you think of the idea? If it were to happen, would you ride it? Is there a better way to spend the money to facilitate moving people and goods between Duluth and Twin Cities? Have you ridden any of the express buses, or van shuttles, that serve the campus going to the Twin Cities? What has
been your experience?

7. The author introduces the term, “ecopsychology” to apply to a city. Where would like to live in the future (say about 10 - 15 years out) where you could experience the best ecopsychology for you and, maybe, your significant other. Describe it and explain how it would fit your lifestyle.

8. Looking ahead about 30 years, how would you predict the future for Duluth, given all the issues raised so far in Plan B 4.0? How about for your hometown?

1201 B 4.0 #6 Boman

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Educ 1201 Managing Planet Earth
Plan B 4.0 Lesson #7 Chapter 7

1. The author makes the point very clearly in this chapter that stabilizing world population is the key to permit creative and attainable solutions to handle poverty and disease. Do you agree with the author?

2. You have undoubtedly studied all forms of population control in other classes and in your homes and churches. So you obviously have ideas on how to achieve the goal of stabilizing population. Briefly outline the best of those ideas. Include major roadblocks to success and how they might be overcome. Also include how United States policies impact your ideas for stabilizing population.

3. Education plays a major role in the author's plan for eliminating poverty. You are now in, at least, your 13th year of formal education. So put yourself in Afghanistan and imagine that you are the new Afghan Commissioner of Education. What are your plans to develop education as one of the major initiatives to bring stability to that country?

4. Vaccination against disease has proven to be remarkably successful. Consider the worldwide effort to eliminate polio in the world as described by the author. Yet there are people in the world, including some in this country, that have deep suspicions regarding vaccination. How would you approach those people to convince them to cooperate? On a more local level, vaccinations are now available for this season's variety of the flu. Have you had flu shots? How about your fellow students? What would convince you, or them, to get flu shots?

5. HIV was on the top of every health curriculum about 20 years ago when the disease first surfaced world-wide, and especially became widespread in the U. S. Did you have much education about HIV in your formal school curriculum? Was is valid information and well presented? How might it have been improved?
6. The author suggests that our best approach to security would be to form a new organization in this country with the letters DGS. What does it stand for? What chance do you give for something like this, or something equivalent, to happen?

7. The author tells intriguing tales of using soap operas to sell family planning and good health procedures. What has been your experience with the media in promoting, or derailing, appropriate and safe sex, healthy life styles, and education?

8. The author's Plan B 4.0 is ambitious but not that extraordinarily expensive (estimated annual cost of 77 billion dollars). What odds do you give the author's plans to reach fulfillment? Where do you sense the major roadblocks? Where would the major support have to come from?

9. Is reading the book making you feel more optimistic or more pessimistic about the future state of our planet?

1201 B 4.0 #7 3-10

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Educ 1201 – Managing Planet Earth
Plan B 4.0 Lesson #8 Chapter #8

1. Recycling paper is one of the quickest ways to reduce the number of trees that must be harvested. How well do you recycle paper products of all kinds? What would it take for you to do a more efficient job of recycling paper? How about your fellow students? Are they good recyclers? If not, why not? If yes, what motivates them to be good recyclers?

2. Do you or any part of your extended your family occasionally burn wood for heat or cooking? Elaborate. Any idea how efficient those burning devices might be? Could they be designed to be more efficient?

3. Reforestation produces great benefits for a community. Most of northern Minnesota was clear cut at the turn of the century to produce timber for construction. What are some of the best examples that you are aware of of reforestation in areas that were once completely cut over or burned?

4. Consider Haiti which is about 90% deforested. What would it require to recover/restore the land that has become so barren?

5. If there are some active farmers in your extended family describe the procedures they use to protect and restore the land. If there are no farmers in your extended family check around with some classmates until you find some with farmers in the family and ask them about the procedures they use to protect and restore the land.
6. What is a “marine park”? Where is the biggest one that belongs to the United States and which president established it? Surprised?

7. Lots of Minnesotans like to fish. If you are one of those answer the following question. If not, find a classmate that is in to fishing and ask them the question. What would you suggest to the Department of Natural Resources to improve the production of Minnesota's fisheries?

8. What is your opinion of the success of the Endangered Species Act? Any specific examples of either success or controversy?

9. An adequate supply of water is the key to most of the ideas presented by the author. How would you assess the supply of water in the State of Minnesota (or pick some other state if know one better than Minnesota)?

10. How would you evaluate the University of Minnesota Duluth as good stewards of the land they manage? Any suggestions where they could improve?

11. The author suggests a budget of 110 billion dollars a year to restore the earth? What is your prediction that this might happen? Who are people that will work to make it happen? And who will work against it happening?

1201 B.4 #7 3–10

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Educ 1201. Managing Planet Earth
Plan B 4.0. Lesson 9. Chapter 9

1. Saudi Arabia, South Korea, and China are the leading countries in “land acquisition”. Why are they in the business of buying agricultural land in other countries, and what gives them an edge in competing for the land?

2. The author refers to “endowments” regarding land production. What are the endowments for the United States? How do those endowments contrast with those of the countries in the sub-Sahara of Africa?

3. Do you use water supplies responsibly or irresponsibly? Give some examples and then describe some areas where you have dramatically improved in your efficient use of water in the last couple of years. What are some ideas where you could improve in the future.

4. How would you rate your personal diet regarding protein consumption – are you an efficient eater of protein or do you eat high on the protein chain?
5. There is a move to buying local products. Is this a concern of yours and how do you act on it? If you have moved to buying primarily local products how has this affected your diet?

6. Describe any experience you have had in either school gardens or home gardens.

7. The author discusses eating efficiently to maximize the use of scarce resources. How would you rate your eating behaviors in terms of efficiency?

8. What is your opinion regarding the United States government policy of subsidizing corn ethanol for use as an automobile fuel? I asked you this question earlier. Has your opinion changed as you have read this book? How does your opinion line up with the author?

9. What countries, or geographical areas, are in the toughest straits regarding food availability for their citizens? And why are they in those straits? What countries are in the best position regarding food availability?

10. Looking to the future, are you optimistic that the governments of the world will act responsibly to achieve adequate food supplies for their citizens?

11. When you read this chapter what personal behaviors did you ponder that could make you a better consumer of what the land and the waters produce? What will it take to get you to act favorably on those behaviors?

1. Now that you have carefully and thoughtfully read chapter 10 (I assume), you are in a position to describe what your personal game plan will be to help protect our planet. The author suggests that it will take two classes of action: personal life style and political action. For example: You might decide on a personal level to move your diet to one that is more plant based and less animal product based. You might decide to join the campus Green Club and become active in political lobbying for structural changes in laws that impact the quality of the environment. And maybe you are already well into those two classes of personal action. At any rate, describe what you plan to do in the next year, in the next five years, in the next 10 years, to do your part in implementing those parts of Plan B that seem
most logical for you. In describing this plan predict what you will be doing professionally and socially in those time frames (1, 5, 10 years).

2. There are three countries that always come up in discussions regarding positive environmental actions. Those three are Norway, Sweden, and Germany. What are your insights on why those countries seem to be leaders in making environmental commitments that are often years ahead of other countries including the United States?

3. The author puts a price tag of about 187 billion dollars per year to implement Plan B. Seems like a significant amount of money unless you compare it to our military budget. See table 10-3. What are you personal beliefs that our citizens will make the decisions to spend the money to implement Plan B Where will support come from? Where will opposition come from?

4. How would you evaluate the environmental consciousness and commitment of the UMD student body? What factors do you think work to increase that environmental consciousness and commitment and what factors work against that environmental consciousness and commitment?

5. This is the last set of questions in the C contract - and the last assignment for this course if you are settling for a C. If you are going for an B or A grade you have honors contracts ahead of you but those assignments are very open ended and subject your personal interests, opportunities and abilities. How did you like Lester Brown's book, Plan B 4.0? Rate interest level, understandability, appropriate coverage of issues, and optimism vs. pessimism. Would you recommend it to a friend or family member? Would you suggest sending a copy to a state or national legislator? Were the assignments appropriate? Any suggestions for improvement? Any last advice you would like to give to the instructor?

This completes your C contract. If you are going for a B or an A grade, you have honors remaining. See the course manual instructions for ideas and directions on honors.