Syllabus for ISCOR 310, Our Global Future (Spring 2014, Schedule #21679 and 21780)
Class Time: TTh, 12:30-1:45PM and 2:00-3:15PM
Class Location: P-145 (Physics Building)
Instructor: Dr. David Larom
Office Hours: Thursday 3:30-5:30 PM
Email: dlarom@mail.sdsu.edu
Office: AL-465 (Arts & Letters)

The best way to reach me is by E-Mail. Please put “ISCOR 310” and a subject in your message header. My reply could be delayed a week or more if you don’t.

Please note that I do not allow the use of electronic devices (laptops, tablets, cell phones etc.) in the classroom. There is considerable evidence that it distracts nearby students, and that students also hurt THEMSELVES – even when they only use laptops to take notes or search for course-related materials!

Students with Disabilities: If you believe you will need accommodations for this class, it is your responsibility to contact Student Disability Services at (619) 594-6473. To avoid any delay in the receipt of your accommodations, you should contact Student Disability Services as soon as possible. Please note that accommodations are not retroactive, and that I cannot provide accommodations based upon disability until I have received an accommodation letter from Student Disability Services.

Course Description

This course is an overview of the major resource and social crises facing the world today, and includes:

1) The historical roots of our current problems
2) Population issues, including overpopulation, urbanization and migration
3) Planetary systems, including ecosystem services and biodiversity
4) Food and water, including freshwater, agriculture, soil, fishing and aquaculture
5) Energy, including fossil fuels, Peak Oil, renewables and the biofuels / food debate
6) Some discussion of waste, pollution and toxicity.

This spring we are honored to participate for a second semester in the Community Engagement for Sustainable Cities (CESC) program in National City. We will do a two week project developing community garden concepts or a related project in Kimball Park. This project will occur towards the end of the semester; we will learn to apply some of the principles we have learned over the semester.

Our interdisciplinary approach will, at different times, take scientific, historical, political, economic and activist perspectives on these crises. We will also consider solutions to them in some detail. Classes will be mostly lecture-based, but may include student activities, videos and guest speakers.

Objectives

By the end of the course, students should be able to:

- Identify major environmental issues from local to global scale
- Critically discuss these issues, using a factual basis
- Investigate connections between sustainability, environmental science, security, policy, economics, ethics and activism
- Begin seeking creative solutions to these problems

1 http://www.stanford.edu/class/linguist156/laptops.pdf ,
This is a General Education (GE) Explorations course in Social and Behavioral Sciences. Completing this course will help you learn to do the following with greater depth: 1) explore and recognize basic terms, concepts, and domains of the social and behavioral sciences; 2) comprehend diverse theories and methods of the social and behavioral sciences; 3) Identify human behavioral patterns across space and time and discuss their interrelatedness and distinctiveness; 4) enhance your understanding of the social world through the application of conceptual frameworks from the social and behavioral sciences to first-hand engagement with contemporary issues.

Courses that fulfill the 9-unit requirement for Explorations in General Education take the goals and skills of GE Foundations courses to a more advanced level. Your three upper division courses in Explorations will provide greater interdisciplinary, more complex and in-depth theory, deeper investigation of local problems, and wider awareness of global challenges. More extensive reading, written analysis involving complex comparisons, well-developed arguments, considerable bibliography, and use of technology are appropriate in many Explorations courses.

Textbooks and readings

There are three primary texts for the course (two required and one optional):

- **The first required text**, and the only one you may need to pay for, is *Our Global Future*, edited by yours truly and published by Cognella. This is a compilation of readings on the abovementioned sustainability issues. There are six copies on Course Reserve in the Love Library. You have two options to purchase the book:
  1. USED copies SHOULD be available from SDSU Bookstore and KB Books. There are no new copies of the book available at either store.
  2. NEW copies of our textbook are available for $71.95 for immediate purchase through the University Readers student e-commerce store at [https://students.universityreaders.com/store](https://students.universityreaders.com/store) (see below for instructions). After purchasing the book online, you will immediately be able to access the first 30% of the book online, and that will get you through the first couple of weeks of class til your hard copy arrives. I recommend you purchase your copy ASAP, since delivery could take a week or two. **To purchase a new copy:**
     - Log on to [https://students.universityreaders.com/store/](https://students.universityreaders.com/store/).
     - Create an account or log in if you have an existing account to purchase.
     - Easy-to-follow instructions will guide you through the rest of the ordering process. Payment can be made by all major credit cards or with an electronic check.
     - If you have any difficulties, please email orders@universityreaders.com or call 800.200.3908 ext. 503.


- **The third (optional) text** is Clive Ponting’s *A New Green History of the World*, which is available through any of the popular online bookstores such as amazon.com. A few used copies may be available at the SDSU Bookstore and KB Books. Several paper copies are on library reserve.

- Other articles for the semester are or will be placed on Blackboard.
- For those who have not yet made up their minds about this class, I have placed the first three weeks of readings on Blackboard for free access.

I usually summarize and augment the readings with selected scientific details, with examples, and with graphics in the Powerpoint decks I use in class. Check on Blackboard: Slide decks are usually available before class for your review.

**Grading**

Grades will be given according to the standard pattern: 59 or less=F, 60-62=D-, 63-66=D, 67-69=D+, 70-72=C-, 73-76=C, 76-79=C+, 80-82=B-, 83-86=B, 87-89=B+, 90-92=A-, 93-100=A. If scores are unreasonably low I will add a curve.

² This Website also has a LOT of other data and tools. I recommend it highly as a research source.
Grading Scale: Each item below is worth 100 points.

<table>
<thead>
<tr>
<th>Item</th>
<th>Points</th>
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<tbody>
<tr>
<td>Participation</td>
<td>100</td>
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<tr>
<td>Midterm Exam</td>
<td>100</td>
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<tr>
<td>CESC Project in National City</td>
<td>100</td>
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<tr>
<td>Final Exam</td>
<td>100</td>
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Total Points 400

To know how many points you need to get a given grade for the class, just multiply the corresponding grading scale number by three. For instance, if your goal is to get a B+ (87%), 4*87=348 points. If your goal is a C you will need at least 4*73=292 points.

Grading – Participation

Your Participation grade will be based on various assessments of how involved you are in the class. These assessments may include simple attendance, short in-class or out-of-class papers, short quizzes, in-class group exercises, grading each other’s papers and other methods. I reserve the right to change the Participation grading rubric, for example if I believe students are not doing the readings or absenteeism has become a problem.

There will be 24 Participation assessments, roughly one per class (not including exams, exam reviews or our first class meeting). At the end of the semester, I will drop the lowest four grades, leaving 20 five point assessments that will make up the 100 points of your Participation grade. Because I am dropping four grades, no excuses are necessary or accepted for absences or for late or missed assignments. If you miss more than four assignments for a good reason (e.g. prolonged illness, University activities) I will find a way to accommodate you.

Here is what you can do get a great participation grade and to help make this a wonderful class:

- Attend every class.
- Do every reading and think hard about what you read.
- Write carefully, paying attention to clarity of expression. This includes grammar and syntax!
- Have informed opinions based on your reading and thinking.
- Overcome any shyness you may feel and speak in class. Ask questions. Agree or disagree with me, with your fellow students and with the reading.

Learning can only occur when you do the above. It is a *dialectical* process occurring *between* human beings, not a procedure wherein I pour information into your brains. My former students have taught me far more than I will teach you this semester; I encourage you to continue the process!

If you are having problems with our class, please discuss your grade worries with me as early as possible. I am much more likely to be flexible with students who participate actively in class. I do not give or accept extra credit assignments.

Grading – Project

I am very happy to say that, as part of the CESC program, we will be actually applying principles of sustainability on the ground in National City. During our two-week project, we will meet with City officials, visit the site, and break into teams, each of which will address one aspect of our design problem. This is a fine opportunity and I am optimistic we will come up with innovative recommendations. Grading will be per group, with each group member getting the same grade, but different groups getting different grades. We will devote some class time to group formation and to group problem-solving questions. We will need to make at least one site visit as well. More will be revealed as we approach the start date of the project.
Grading – Exams

Exams may contain any of the standard performance measures. I greatly value creative synthesis and will evaluate it by having you write short essays and paragraphs, but there are also certain key concepts that have simple right and wrong answers. In these cases I will use fill-in-the-blank, matching, multiple choice or true/false questions. My exams are typically a mixture of multiple-choice, matching and short essay questions, and require a Blue Book, a Scantron 882-E form and a #2 pencil to fill out the form. The final exam will be non-cumulative in the sense that any “right or wrong” type questions will only come from the portion of the class after the midterm, but it will be cumulative on essay questions, in the sense that you will be expected to synthesize your knowledge gained from the entire class.

This class is quite multi-disciplinary and I realize this can be confusing. I therefore devote an entire class to a review session before your midterm and final exams.

Honesty

Anyone caught cheating (example: copying on a test) or committing plagiarism (example: putting sentences from a Website, book, journal article or someone else’s short paper in an essay, without attribution, i.e. pretending you thought them up yourself) will receive a grade of F for the class and I will file a report with the Office of Judiciary Procedures. I strongly recommend students take the plagiarism tutorial at http://library.sdsu.edu/guides/tutorial.php?id=28 and read the SDSU policy at http://its.sdsu.edu/docs/TURN_Plagiarism_AcadSen.pdf.

Getting Help

Most office hours go unused by students, so take advantage of the opportunity to see me! This is particularly important if you want help with your writing, or have any special difficulties with grasping the course material. I like it when you come to my office hours. It helps me to get to know you.
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Class</th>
<th>Topic*</th>
<th>Reading Assignment or other class activity</th>
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| 1    | Th 1/23 | 1 1 | World on The Edge, Preface & Chapter 1.  
2 New Green History of the World, Chapter 1, “Easter Island”. |
| 2    | Tu 1/28 | 2 3 | New Green History, Chapter 2, "Foundations of History" (physical systems of Planet Earth),  
4 and Chapter 3, "99% of Human History" (our human history as hunter-gatherers). |
| 3    | Th 1/30 | 3 5 | Global Future, "A Short history of Progress" (transition to agriculture, early agricultural civilizations).** |
| 4    | Tu 2/4  | 4 6 | New Green History, Chapter 9, "Foundations of Inequality" (colonial plantation agriculture).  
Add/Drop ends at midnight. Participation grades begin now. |
| 5    | Th 2/6  | 5   | Movie: FLOW–For Love of Water (global water issues and human rights). |
| 6    | Tu 2/11 | 6 7 | Global Future, "When the Rivers Run Dry" (global water issues).  
You must have purchased the Global Future Reader by now, or use Library Reserve copies. |
| 7    | Th 2/13 | 7 8 | World on the Edge, Chapters 2-3 (groundwater, soil). |
| 8    | Tu 2/18 | 8 9 | World on the Edge, Ch. 4-7 (global warming, food security, environmental refugees, failing states). |
| 9    | Th 2/20 | 9   | Movie: Food, Inc. (developed world agriculture). |
| 10   | Tu 2/25 | 10 10 | Global Future, "Save Three Lives" (developing world agriculture). |
World on the Edge, Chapters 11-12 (ending poverty, stabilizing/feeding the global population). |
| 12   | Tu 3/4  | 12 12 | Global Future, "Shadow Cities" (squatters and urbanization). |
| 13   | Th 3/6  | 13   | Midterm Review |
| 14   | Tu 3/11 | 14   | Midterm Exam |
| 16   | Tu 3/18 | 16   | Energy Movie: Carbon Nation or other. |
| 17   | Th 3/20 | 17 14 | The Current Energy Outlook: Peak Oil, Fracking and more (readings TBD). |
World on the Edge, Chapter 10 (restoring damage to ecosystems). |
| 19   | Th 3/27 | 19 16   | World on the Edge, Chapter 10 (restoring damage to ecosystems). |
| 20   | Tu 4/1  |     | SPRING BREAK – NO CLASSES |
| 21   | Th 4/3  |     | SPRING BREAK – NO CLASSES |
| 22   | Tu 4/8  | 20 20 | SAGE PROJECT IN NATIONAL CITY |
| 23   | Th 4/10 | 21 21 | SAGE PROJECT IN NATIONAL CITY |
| 24   | Tu 4/15 | 22 22 | SAGE PROJECT IN NATIONAL CITY |
| 25   | Th 4/17 | 23 23 | SAGE PROJECT IN NATIONAL CITY |
| 26   | Tu 4/22 | 24 17 | Global Future, "Collapse" (civilizations that have successfully avoided collapse). |
| 27   | Th 4/24 | 25 18 | World on the Edge, Chapters 8-9, 13 (energy efficiency, renewables, saving civilization). |
| 28   | Tu 4/29 | 26 19 | My work: Water purification in Tawi-Tawi, Philippines), local research farm in Bonita, and more. |
| 29   | Th 5/1  | 27 20 | Global Future, “Gaviotas” (techno-community restoring a Colombian forest). |
| 30   | Tu 5/6  | 28 21 | Borneo Readings: Thinkers of the Jungle 160-188, 234-239 and 300-317 (creating a whole society to restore a rainforest and save orangutans), On Blackboard. |
| 32   | F 5/9   | N/A  N/A | Final Exam Review – class-length lecture video on Blackboard. |
| 33   | Tu 5/13 |     | Final Exam for 2:00 class 1:00-3:00PM – same room, *** EARLIER TIME *** |
| 34   | Th 5/15 |     | Final Exam for 12:30 class 10:30AM-12:30PM – same room, *** EARLIER TIME *** |

*These are the topics of my lecture slides, which you can find in Blackboard Course Documents.  
**Also available on Blackboard. No other Global Future readings will be on Blackboard.
Readings, class by class (approximate: Changes semester-to-semester)

Note: In order to accommodate student add/drops and make time for book copies to arrive, I have made the first several weeks’ readings available for free on Blackboard.

The first two weeks of class give a historical background to understand our present situation.

Class 1: I will introduce myself, go over the syllabus and briefly describe the course. We will then set the context for our historical studies with a brief overview of the extent of the current planetary resource crisis, reading the Preface and Chapter 1 of Lester Brown’s World on the Edge. We will then cover Chapter 1 of Clive Ponting’s A New Green History of the World, “Easter Island”. This is among the most clearly documented cases of resource-induced environmental collapse.

For Class 2 we will read Chapters 2 and 3 of A New Green History. Chap. 2, “The Foundations of History”, concerns the geophysical realities and climatic cycles that drive planetary functioning. This is not a science class, but it is helpful if we can familiarize ourselves with these underpinnings of all life on earth. With Chapter 3, “99% of Human History”, we begin to look at how humans have fed themselves throughout history. The “99%” refers to the fact that our ancestors were hunter-gatherers for many thousands of years before agriculture was invented. This is important because much of how we are wired socially and nutritionally reflects this history.

Class 3: Continuing the agricultural theme, we move to my Global Future book, reading the first chapter, a selection from Ronald Wright’s A Short history of Progress. As we will see, Wright is being rather sarcastic in using the word “progress” to describe the transition from hunting and gathering to farming and ranching.

In Class 4 we read Chapter 9 of A New Green History: “The Foundations of Inequality”. This is an account of the vast imperial expansion of Europe into the New World and of its less complete colonization of Africa and Asia. This expansion centered on a new development, plantation agriculture. Previous agriculture had been for subsistence, but plantation agriculture centered on luxury items like coffee, tea and sugar, and was dependent on the cheap labor supplied by enormous slave populations. Plantation agriculture was hugely destructive of the “new” land used to produce these items. The attitudes it engendered toward the environment and toward other human beings prefigured the mechanistic thinking of the Industrial Revolution.

Having concluded our historical study, we now begin a concentration on food and water, the resources upon which life depends. Everything else is either a luxury or something that helps bring us food and water.

Class 5 is all about freshwater, the lifeblood of human existence (and of all other life forms). We will watch the movie FLOW (For Love of Water), which concerns the privatization of freshwater and alternatives to this rather frightening development.

In Class 6 we read selections from Pearce, When the Rivers Run Dry in Our Global Future. Pearce describes numerous case studies about water shortages. Some chapters are frightening, and some contain hopeful new solutions to what is potentially the greatest problem of the 21st Century.

In class 7, we read Section I (Chapters 2-4) of Lester Brown’s World on the Edge. This section is called “A Deteriorating Foundation” and concerns the undercutting of the planetary resource base. Chapter 2, “Falling Water Tables and Shrinking Harvests” underscores the connection between reduced water supply and food shortages. Chapter 3, “Eroding Soils and Expanding Deserts” explains the connection between agriculture and ranching’s poor treatment of the soil and the resultant desertification that is causing environmental and political problems all over the world. These chapters reinforce the previous Pearce water readings. Chapter 4, “Rising Temperatures, Melting Ice and Food Security”, shows how climate change is projected to affect global food production.
Class 8: Section II of World on the Edge is called “The Consequences”. Chapter 5, “The Emerging Politics of Food Scarcity”, describes some very disturbing economic land grabs that are evolving as “solutions” to skyrocketing food prices and the ensuing food security issues. Chapter 6 describes the situation with environmental refugees, a crisis that should resonate with ISCOR Majors. Chapter 7 (“Mounting Stresses, Failing States”) describes the political and economic consequences of the planetary resource crisis that are beginning to manifest in the more challenged regions of the planet.

With Class 9, we begin a closer look at food and agriculture in the developing world with Robert Rodale’s Save Three Lives, in Our Global Future. Rodale, son of one of the founders of the organic farming tradition in the USA, describes the causes and effects of food shortages in the developing world, particularly Africa.

In class 10 we take a good look at US agricultural practices by watching Food, Inc., an award-winning documentary. The rest of the developed world suffers from similar problems, and increasingly the developing world as well.

We now spend a week on population, demography and urbanization.

In class 11, after going over the results of the midterm, we discuss a National Geographic article, “Population 7 Billion” (available on Blackboard). Overpopulation is a huge concern; indeed it is a major cause of the global resource crisis. However, human population is expected to stabilize around the middle of this century, and many now believe overconsumption (greater resource use per person) is the greater problem. We also read Chapters 11 (“Eradicating Poverty, Stabilizing Population, and Rescuing Failed States”), and 12 (“Feeding 8 Billion”) of World on the Edge. Students can optionally read Chapter 11 of A New Green History, “The Weight of Numbers”, as well.

I try to keep these readings up to date; my own thinking is changing. For the interested student, Fred Pearce’s The Coming Population Crash is an excellent and very up-to-date source.

For Class 12, we will return to Our Global Future for some selections from Neuwirth’s Shadow Cities. Developing-world urbanization is the absorbing demographic story of the 21st Century (and of the latter half of the 20th). In the last few years an unprecedented transition occurred: More than half of the world’s population now lives in cities. Many of the migrants are poor farmers who build shanty towns on land they do not own. Neuwirth eloquently describes the nature and magnitude of the squatter crisis on four continents.

Class 13 is a review for the midterm exam.

Class 14 is the midterm exam.

We now begin a 2 week section concerning energy.

Class 15: We will discuss exam results and then Chapter 12 of A New Green History. The first great transition in human history was from hunting and gathering to farming and ranching, so calling Chapter 12 “The Second Great Transition” implies an equally great – perhaps even greater – change in how humans live on this earth. The exploitation of fossil fuels and subsequent Industrial Revolution have transfigured human society over the last century or so.

Class 16: We will watch the movie Carbon Nation, which is a pretty well-made description of our energy crisis. In the past I have shown Fuel, which makes a case for biofuels as a part of a sustainable energy portfolio, as well as The Skeptical Environmentalist and Crude Awakening. Each of these has its strong and weak points, but on balance I like Carbon Nation the most.

Class 17: We will contrast Peak Oil predictions with recent developments in petroleum technology. From Our Global Future, we will read selections from Richard Heinberg’s “The Party’s Over: Oil, War and the Fate of Industrial Societies”. When petroleum production reaches a maximum and begins declining, demand will still be increasing. Prices will increase permanently, with devastating consequences for the global economy. Heinberg makes a
convincing case that this is occurring right now. He describes the drastic geopolitical consequences of Peak Oil, and suggests some intelligent responses to this crisis among crises.

We will compare Heinberg’s perspective with the rise of hydraulic fracturing, which some predict will provide energy for many decades to come, others warn will poison the land and fry the planet due to its carbon-intense production methods, and others state is simply a scam with little future other than to delude investors.

The next week covers environment and ecology issues. This section is short because these issues actually appear throughout all the readings.

Class 18 covers selections from Laurie Garrett’s The Coming Plague in Our Global Future. Garrett shows the intimate connection between disease and ecology, and in the process eloquently summarizes global environmental damage.

From here through the last reading of the class, we will focus on integrated solutions to all the sustainability problems discussed in this class and in the readings.

Class 19: I will make introductory remarks on environment and ecology, and we will also discuss Chapter 10, “Restoring the Economy’s Natural Support Systems”, of World on the Edge. This chapter describes how we can affordably restore ecosystem functioning to the world’s damaged forests, soil, rangelands, fisheries, water tables and biodiversity for a fraction of the global defense budget.

Classes 20-23 will consist of in-class presentations, site visits and problem-solving sessions around the CESC project in National City. I may change this to take place at the end of the semester.

Class 24: Returning to regular classes after our project, we now read selections from Jared Diamond’s Collapse in Our Global Future. I chose these sections for their message of hope; they demonstrate how three civilizations were able to attain long-range sustainability.

Class 25: We return to World on the Edge for more detail on energy solutions and how they might be funded, reading Chapters 8 (“Building an Energy-Efficient Global Economy”), 9 (“Harnessing Wind, Solar and Geothermal Energy”) and 13 (“Saving Civilization”). This will conclude Lester Brown’s global approach to the resource crisis. World on the Edge is an integration of single-type solutions that have worked and a plea for a planetary mobilization of these solutions to save mankind. If humanity can find the motivation for this, it will be immensely beneficial. If this cannot be accomplished on a global scale, integrated, highly local solutions such as the case studies in the remaining classes may be the only remaining option.

Class 26 is where I describe my own nascent research into water purification in the southern Philippines’ Muslim conflict zone (Tawi-Tawi Water Project) and local agricultural sustainability (Aztec Farms).

Class 27 employs readings from Alan Weisman’s “Gaviotas” in Our Global Future. “Gaviotas” describes a community in the Colombian llanos that was built from the start on principles of sustainability, environmental regeneration and participatory democracy. The llanos are at the heart of a war zone – in this case the Colombian drug wars. It is miraculous that Gaviotas was able to accomplish so much with so little violence and no militarism. Gaviotas is also the largest environmental regeneration project I am aware of, and is a powerful example for all of us.

Class 28: We begin with one of the most remarkable stories of environmental restoration I have ever heard. It seems an unlikely source: A coffee table picture book called Thinkers of the Jungle, about orangutans. It turns out that to save the Borneo orangutan, author Willie Smits also had to restore a rainforest that had been reduced to a sterile grassland. To save the rainforest, he had to construct a functioning society based on sustainable biofuels, democratic checks and balances and sophisticated satellite technology. Thinkers of the Jungle is available on Library reserve, and the most important sections have been scanned and are available on Blackboard.
Class 29: Our final reading for the class comprises selections from Carl Safina’s “Song for the Blue Ocean” in *Our Global Future*. This is a moving description of community-based fisheries conservation in the southern Philippines, a portion of the world (as with the previous readings from “Gaviotas”) subject to terrorism and massive government corruption. Safina feels, and I believe too, that the restoration of fisheries in this area is nothing short of miraculous. I close with this reading because I believe it best expresses the complexities of helping people and the planet in a changing, degrading world.

Class 30 is our final exam review.