

**COURSE TITLE: GLOBAL WARMING: AN INCONVENIENT TRUTH**

**NO. OF CREDITS: 5 QUARTER CREDITS**  
**[Semester Cr Equivalent: 3.33]**

**WA CLOCK HRS: 50**  
**OREGON PDUs: 50**  
**CEUs: 5.0\*\***

**INSTRUCTORS: GLENN MONAHAN, B.S.**  
**NANCY SCHULTZ, M.ED.**  
**(406) 691-1135**  
**glennm@uppermissouri.com**

### **ASSIGNMENT CHECKLIST**

This assignment checklist will help you plan your work. Please check off items as you complete them.

#### **CLOCK, CEU, PDU, 400 LEVEL, or 500 LEVEL ASSIGNMENTS**

##### **A. Information Acquisition:**

- #1:** View the required film "An Inconvenient Truth." Write a 2-3 page critical review.
- #2:** Create an annotated bibliography of five or more books or articles related to Global Warming.
- #3:** Write a 3-5 page opinion paper about global warming or a related topic.
- #4:** Keep a log and scrapbook of articles and ideas for use in lesson plans.
- #5:** Design a graphic organizer or create a thinking/concept map to assess students' prior knowledge.
- #6:** Formulate 4-5 Authentic Questions that engage students in deeper thinking.
- #7:** Create a teaching unit (5-6 lessons) about one of the subtopics related to global warming discussions.

**NOTE: If you are doing this course for Clock Hrs, PDUs or CEUs, then #7 is your final assignment.**

#### **400 & 500 LEVEL ASSIGNMENTS**

##### **B. Learning Application:**

- #8:** Create a movie guide and show students the film "An Inconvenient Truth."
- #9:** Teach the 5 lessons (#7) and assess your effectiveness.

#### **500 LEVEL ASSIGNMENT**

- #10:** In addition to the 400 level assignments, complete **one (1)** of the following assignment options.
  - Write a 3-5 page research paper on global warming.
  - Another assignment of your own design with prior approval of the instructor

#### **400 & 500 LEVEL ASSIGNMENT**

##### **C. Integration Paper:**

- #11:** Complete the Integration Paper by responding to the questions listed in the syllabus.

#### **NOTES:**

- You may work collaboratively with other teachers and submit joint assignments on all but the final Integration Paper, which must be individually authored and submitted.
- Alternatives to written assignments (video, audio tape, photo collage, a collection of products, letters to editor, brochure and Web pages) may be submitted as substitute assignments with the instructor's prior approval.
- To maintain privacy, please do not refer to students in your paper by their actual name, but rather use an alias or designation such as "Student A."

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**COURSE DESCRIPTION:**

Global warming, although recognized as a problem by the scientific community since the '70's, has only recently been thrust into the national conscience by former Vice President Al Gore's film, "An Inconvenient Truth." This award-winning film presents strong evidence that human activities are causing Earth's climate to change dramatically, that the change may be irreversible, and that these changes are a serious threat to the Earth's ecosystems. Despite the strong evidence of global warming, there are scientists, politicians, and business leaders who question the potential magnitude of the problem, with some even asserting that global warming is non-existent.

Participants in this course, intended for teachers of grades 6-12, will investigate the phenomenon of global warming, both its causes and its manifestations, and will evaluate the seriousness of the problem. They will consider the scientific arguments that support and refute global warming, as well as potential solutions to the problem. Participants will develop a teaching unit which will pursue some kind of carbon reduction project for their classroom.

Mr. Gore's film, "An Inconvenient Truth," will be used as an introduction to global warming for participants, and will also be used in the classroom as part of the resulting teaching unit. In addition to Mr. Gore' film, participants will explore the vast amount of global warming resources which are available in print and on the Internet.

There are no additional material fees to be paid after registration. All materials are online.

**LEARNING OUTCOMES:**

Upon completion of this course, participants will have:

1. Viewed the film, "An Inconvenient Truth", and written a critical summary of the film.
2. Developed an understanding of the scientific principles of the "greenhouse effect".
3. Gained an understanding of Earth's carbon cycle.
4. Gained an understanding of the role of human-produced carbon dioxide in Earth's atmosphere
5. Identified sources of human-produced carbon dioxide.
6. Listed global warming effects on Earth systems: weather, sea level, glaciers and ecosystems' stability.
7. Evaluated contrasting scientific information about global warming.
8. Gained an understanding of how global warming may impact human populations.
9. Gained an understanding of the concept of "carbon footprint".
10. Explored technologies with potential to reduce global warming.
11. Developed personal strategies that can reduce your individual carbon footprint.

**COURSE REQUIREMENTS:**

Completion of all specified assignments is required for issuance of hours or credit. The Heritage Institute does not award partial credit.

**HOURS EARNED:\*\***

Completing the basic assignments (*Section A. Information Acquisition*) for this course automatically earns participants their choice of 50 Washington State Clock Hours, 50 Oregon PDUs or 5 CEUs (Continuing Education Units, which translates to 50 hours). The Heritage Institute is an approved provider of Washington State Clock Hours, Oregon PDUs, and CEUs by IACET (International Association of Continuing Education and Training, an official national and international certifier of CEUs).

## UNIVERSITY QUARTER CREDIT INFORMATION:

### • UNIVERSITY QUARTER CREDIT OPTION 400 & 500 LEVEL

Teachers may opt to register for 5 (five) Antioch University, Seattle, 400 or 500 level quarter credits, instead of hours, and will be required to:

1. Complete all assignments for clock hours/CEUs (*Section A: Information Acquisition*)
2. Complete the extra reading/viewing, writing and classroom application assignments specified in the syllabus for the 400 or 500 level credit option (*Section B: Learning Application*)
3. Complete an Integration Paper by answering 5 questions (*Section C: Integration Paper*)

### • REQUIREMENTS FOR UNIVERSITY QUARTER CREDIT

Antioch University Seattle requires 75% or better for credit at the 400 level (Upper Division) and 85% or better to issue credit at the 500 level (Post-Baccalaureate). These criteria refer both to the amount of work submitted as well as the quality of work as determined by each instructor.

Teachers who register for Antioch University Seattle 400 or 500 Level Credit will be required to:

1. Complete *Section A: Information Acquisition* assignments 30%
2. Complete *Section B: Learning Application* assignments appropriate for your levels 40%
3. Complete *Section C: Integration Paper* assignment 30%

### • CREDIT/NO CREDIT (No Letter Grades or Numeric Equivalents on Transcripts)

Antioch University Seattle Continuing Education Quarter credit is offered on a Credit/No Credit basis; neither letter grades nor numeric equivalents will show on a transcript. At the 400 level credit granted is equal to a "C" or better, and at the 500 level credit granted is equal to a "B" or better. This information is stated on the back of the transcript.

### REQUIRED DVD & WEB SITES:

There is no required textbook for the class, however several reference books are listed in the Bibliography section, from which you may choose.

#### Required DVD: "An Inconvenient Truth."

The movie is available in many libraries or can be purchased through amazon.com

#### 4 required web sites listed below:

Wiser Earth <http://www.wiserearth.org/article/3cf24978fa12a960314ac239000af3fc/group/ynw>

This is an excellent introduction to Greenhouse Gases, and includes some practices that are presently under implementation by both governments and corporations for controlling global warming.

United States Government National Oceanic and Atmospheric Administration

<http://www.ncdc.noaa.gov/oa/climate/globalwarming.html>

This site is a wealth of information and statistics regarding global warming.

Pew Center on Global Climate Change <http://www.pewclimate.org/>

Very informative and comprehensive website with information about the science, public policy, and economics of global warming.

The New York Times Online <http://www.nytimes.com/>

From the home page initiate a search for "global warming". From your results, at the bottom of the page, you will then be able to restrict your search to articles in the "science" or the "opinion" section.

### MATERIALS FEE:

NONE.

### HEADING REQUIRED FOR ALL ASSIGNMENTS

A heading is required; please use the following format.

Your Name:

Instructor Name:

Course Number:

Course Name:

Date:

Level: Clock/ PDU/ CEU/ Credit (400 or 500)

Assignment #:

## ASSIGNMENTS for CLOCK HRS/PDUs, CEUs, 400 or 500 LEVEL UNIVERSITY QUARTER CREDIT

### A. INFORMATION ACQUISITION

#### Assignment #1:

View the required film "An Inconvenient Truth." Write a 2-3 page critical review.

#### Assignment #2:

Browse the required web sites (see *Required DVD and Website* Section). Conduct an exploration of supplementary websites (minimum 5) of your choosing. Create an annotated bibliography of five or more books or articles related to Global Warming. The annotation should include Title, Author, Publisher (or URL), length of the book or article and your review of information contained. Add your opinion of the value or your criticism of the contents of each book or article, and rate the importance of the material in contrast to the subject of your course.

#### Assignment #3:

Write a 3-5 page opinion paper about global warming or a related topic that is supported by your web explorations and summarizes Information Acquisition activities from Assignments #1 & #2.

Some suggested writing prompts:

- Is global warming a serious problem or not?
- Is global warming simply a minor problem for our planet or an impending crisis?
- Do the solutions to global warming involve business and economic hardships that are not economically justifiable, or is it good business to care for the environment?
- Can controlling carbon emissions lead to other benefits, such as improved air quality?
- What level of proof of global warming should society have before taking action?
- Is it necessary to have 100% unequivocal proof?

#### Assignment #4:

Over a 2-3 week period, find articles in newspapers, listen to radio or television reports and read in magazines articles discussing global warming. Keep a log and scrapbook of articles and ideas for use in lesson plans. (Log at least one submission/day)

#### Assignment #5:

Design a graphic organizer or create a thinking/concept map to be used to assess your students' prior knowledge, assumptions, and misconceptions about global warming. Create the organizer. Include a sample.

#### Assignment #6:

Formulate using Bloom's (1956) taxonomy, 4-5 Authentic Questions that engage students in deeper thinking about global warming or a related topic. Teachers of Grades 6-12 may ask students to use the taxonomy to create questions either to ask and answer their own questions or to create questions based on the information they are studying. In this scenario the questions you formulate would be sample types.

#### Assignment #7:

Explore the Global Warming Debate. Create 5-6 lessons about one of the following subjects listed below. Each lesson shall be comprised of *lecture materials* (including visual aids), and *classroom materials* (such as worksheets) that will give your students hands-on materials to learn about the listed topics.

- Greenhouse Effect
- Carbon Cycle
- Sources of human-produced carbon dioxide
- Effects of global warming on various Earth systems such as climate, oceans and sea level, and examples of impacted ecosystems
- In-depth examination of interacting Earth systems in the global warming phenomenon (e.g. oceans, atmosphere, plants, glaciers)
- Impacts of global warming upon human activities such as agriculture
- The concept of the carbon footprint
- Technologies that can help to reduce global warming

- Strategies by which students can reduce their carbon footprint, both as individuals and collectively. It is strongly recommended that this component be given strong emphasis, since young people will be the most impacted by unchecked global warming and since their lifestyle choices can make a significant impact on mitigating global warming

Accompany your lesson plans with a 1-2 page summary that addresses:

- A description of your teaching situation
- A timetable outlining when you will introduce these lessons
- A statement of learning outcomes for what you will be teaching
- A description of assessment of student learning

***This completes the assignments required for Washington Clock Hours, Oregon PDUs, or CEUs.***

***Continue to the next section for additional assignments required for University Quarter Credit***

## **ADDITIONAL ASSIGNMENTS REQUIRED for 400 or 500 LEVEL UNIVERSITY QUARTER CREDIT**

### ***B. LEARNING APPLICATION***

In this section you will have an opportunity to apply your learning to your professional situation. This course assumes that most participants are classroom teachers who have access to students. If you are not teaching in a classroom, please contact the instructor for course modifications. If you are a classroom teacher and start or need to complete this course during the summer, please try to apply your ideas when possible with youth from your neighborhood, at a local public library or parks department facility, (they will often be glad to sponsor community-based learning), or with students in another teacher's summer classroom in session.

#### **Assignment #8: (Required for 400 and 500 Level)**

Create a grade appropriate Movie Guide that will focus student viewing on key concepts/highlights of the film. Show the film "An Inconvenient Truth" to the students. Submit the Movie Guide to the instructor.

#### **Assignment #9: (Required for 400 and 500 Level)**

Teach the lessons created in Assignment #7 and assess your effectiveness. In a concise report describe what aspects of existing practice pose a barrier to implementing desired practice, describe any areas that need improvement as well as how you will modify your instruction. State any unanswered questions that may still exist. Back up your statements with evidence. Survey your class and ask them what they enjoyed, found challenging, and what they learned and any other relevant questions. Submit assessment report, rubric and survey synopsis.

### **500 LEVEL ASSIGNMENT**

#### **Assignment #10: (500 Level only)**

In addition to the 400 level assignments, complete **one (1)** of the following assignment options:

**Option A)** Write a 3-5 page research paper on global warming. You may choose to focus upon the current scientific research that is being conducted, on the economic impacts of global warming on both developed and undeveloped countries, on innovative approaches that are being proposed to deal with the problem, or on another topic of your choosing. Your paper should draw from up to date sources referenced in a bibliography.

**OR**

**Option B)** Another assignment of your own design with prior approval of the instructor

## **400 & 500 LEVEL ASSIGNMENT**

### ***C. INTEGRATION PAPER***

#### **Assignment #11: (Required for 400 and 500 Level Credit)**

Write a 2-3 page Integration Paper answering these questions:

1. What did you learn vs. what you expected to learn from this course?
2. What aspects of the course were most helpful and why?
3. What further knowledge and skills in this general area do you feel you need?
4. How, when and where will you use what you have learned?
5. How and with what other school or community members might you share what you learned?

#### **INSTRUCTOR EVALUATION OF WORK:**

Please submit a self-addressed, stamped envelope with each assignment if you would like your materials returned with the instructor's comments.

#### **QUALIFICATIONS FOR TEACHING**

**Glenn Monahan, B.S.**, in Geology from Montana State University; junior high earth science teacher for 15 years; park ranger in Yellowstone for 5 years; member Geological Society of America.

**Nancy Schultz, M.Ed.**, elementary teacher for 30 years; park ranger in Mt. Rainier N.P.

Both instructors have been teaching for The Heritage Institute since 1992. They live in Anaconda, Montana in a restored 1923 convent; they have installed a 2400-watt photovoltaic solar system, and a 1600-square foot solar hot water system at their home.

## GLOBAL WARMING: AN INCONVENIENT TRUTH BIBLIOGRAPHY

*The Science and Politics of Global Climate Change: A Guide to the Debate*; by Andrew E. Dessler and Edward A. Parson; 200 pages; Cambridge University Press (January 23, 2006); ISBN-10: 0521539412; ISBN-13: 978-0521539418. Climate variability has become the primary environmental concern of the 21st Century. Yet, despite the scientific community's warnings of the imminent dangers of global warming, politicians world-wide have failed to agree on what to do about this potentially devastating environmental problem. This introductory primer informs scientists, policy makers and the general public by clarifying the conflicting claims of the debate.

*Global Warming: The Complete Briefing*; by John Houghton; 382 pages; Cambridge University Press; 3rd edition (September 6, 2004); ISBN-10: 0521528747; ISBN-13: 978-0521528740. John Houghton explores the scientific basis of global warming and the likely impacts of climate change on human society in this comprehensive guide to the subject. He then addresses the action that could be taken by governments, industry and individuals to mitigate the effects of global warming. Previous Edition (1997): 0-521-62089-9 Previous Edition (1997): 0-521-62932-2

*Shattered Consensus: The True State of Global Warming*; by Patrick J. Michaels; 291 pages; Rowman & Littlefield Publishers, Inc. (December 28, 2005); ISBN-10: 0742549232; ISBN-13: 978-0742549234. Shattered Consensus: The True State of Global Warming convincingly demonstrates the remarkable differences between what we commonly read about global warming and what is really happening. Nine chapters describe major problems with computer simulations of future climate that are the basis for wrenching policies being proposed by world leaders. Anyone who reads this book will come away with a new appreciation of the complexity of the climate issue and will question the need for expensive policies that are likely to have little or no detectable effect on the planet's temperature. Published in cooperation with the George C. Marshall Institute.

*CBS News Presents: Global Warming*; DVD Release Date: February 12, 2007; ASIN:B000NDJQN6; This compilation, containing 10 segments from 60 Minutes and the CBS Evening News Archives, begins by chronicling the research, new discoveries, and political implications of the Global Warming question. The stories date from January 2001 to June 2002. The compilation concludes with a 60 Minutes segment from 2006, "Rewriting the Science", questioning Bush Administration's handling of the Global Warming issue.

*Down-to-Earth Guide To Global Warming*; by Laurie David and Cambria Gordon; Reading level: Ages 9-12; 128 pages; Orchard Books (September 1, 2007); ISBN-10: 0439024943; ISBN-13: 978-0439024945 Irreverent and entertaining, DOWN TO EARTH is filled with fact about global warming and its disastrous consequences, loads of photos and illustrations, as well as suggestions for how kids can help combat global warming in their homes, schools, and communities. Engagingly designed, DOWN TO EARTH will educate and empower, leaving readers with the knowledge they need to understand this problem and a sense of hope to inspire them into action.

*Unstoppable Global Warming: Every 1,500 Years*; by Dennis T. Avery and S. Fred Singer 276 pages Rowman & Littlefield Publishers, Inc. (February 1, 2007) ISBN-10: 0742551172 ISBN-13: 978-0742551176. Singer and Avery present in popular language supported by in-depth scientific evidence the compelling concept that global temperatures have been rising mostly or entirely because of a natural cycle. Unstoppable Global Warming explains why we're warming, why it's not very dangerous, and why we can't stop it anyway.

Longman, *Longman Advanced American Dictionary*, 2005, Pearson Education Limited: Essex, England. ISBN 1 405 82111 6

Gershon, David. (2006). *Low Carbon Diet: A 30 day program to lose 5000 pounds*.

Hartmann, Thom. *The Last Hours of Ancient Sunlight*.

Little, Charles. *The Dying of the Trees*.

McKibben, Bill. *The End of Nature*.

## GLOBAL WARMING: AN INCONVENIENT TRUTH ADDITIONAL RESOURCES

### Websites

*CSI: Climate Status Investigations*

<http://www.keystonecurriculum.org/>;

Good website with downloadable curriculum for all grade levels.

*Global Warming*

[http://www.nytimes.com/learning/issues\\_in\\_depth/20060406.html](http://www.nytimes.com/learning/issues_in_depth/20060406.html)

From the New York Times and Bank Street College this website contains materials for teachers.

### Curriculum

<http://www.facingthefuture.org/>

<http://hdgc.epp.cmu.edu/teachersguide/teachersguide.htm>

[http://www.yesmagazine.org/article\\_list.asp?Type=4&ID=5](http://www.yesmagazine.org/article_list.asp?Type=4&ID=5)

[http://www.davidsuzuki.org/NatureChallenge/at\\_School/background.asp](http://www.davidsuzuki.org/NatureChallenge/at_School/background.asp)

<http://www.theshiftmovie.com/>

### 11th hour/Bioneers

<http://www.bioneers.org/11thhour>

<http://www.undoit.org/home.cfm>

### Arctic Bioregion/Inuit

<http://www.inuit.org/index.asp?lang=eng&num=2>

<http://www.oilonice.org/watch/watchtheshort.php>

### Education/Ecological Literacy

<http://www.bioneers.org/education>

<http://www.ecoliteracy.org/education/sustainability.html>

### General

<http://www.wiserearth.org/>

[http://www.footprintnetwork.org/gfn\\_sub.php?content=footprint\\_overview](http://www.footprintnetwork.org/gfn_sub.php?content=footprint_overview)

<http://www.global-mindshift.org/>

<http://www.takingitglobal.org/home.html>

<http://www.earthcharter.org/>