THE COLLEGE OF NEW JERSEY

FSP 141- 02 (8:30) - 05 (10:00) First Seminar, Natural Science

Syllabus – Fall, 2013

Instructor: Dr. David Letcher Business Bldg. 316 x2828 letcher@tcnj.edu

Office hours: Monday 10 - 11; Wednesday 11 – 12; Friday. 3:30 – 4:30 pm and by appointment

Pre-requisite: freshman status.

Materials:

Kitchen, David E. (2014). *Global Climate Change: Turning Knowledge into Action*. Boston: Pearson.

Catalog description:

Global Climate Change: The Science and the Debates

Why are scientists, politicians, and other concerned citizens concerned about the consequences of climatic change? This course addresses that question. Students will distinguish between short-term atmospheric phenomena (weather) and long-term trends in weather (climate.) The influence of ocean circulation on weather and climate is included. The changes we see in modern-day weather and climate will be compared to what happened in the past.

Students will become knowledgeable about how scientists deduce past climates through such evidence as ice cores, sediment cores, coral reefs, the fossil record, and tree rings. Examination of causes of climatic change that will be discussed include plate tectonics, changes in the earth's orbit, changes in the earth's energy balance, variations in the sun's energy output, and historical human activities, especially since the beginning of the industrial revolution. An appreciation of how research in climate change is done will be gained by a qualitative review of climate models.

After establishing the facts about climate change, discussion will include examining social (e.g. population migration and water supplies) , economic (e.g. production and supply of food), and environmental (e.g. sea-level rise and changing weather patterns) consequences of climate change.

Overall evaluation will be based on the following:

Participation, four short papers	12%
Homework assignments	18
Tests, two @ 10	20
Major papers, two @ 15	30
Final paper (in lieu of final exam)	20
Total	100

Grading scheme - - based upon the total number of points you accumulate.

A 93.00 - 100	B^- 79.00-82.99	D^+ 66.00-68.99
A^- 89.00-92.99	C^+ 76.00-78.99	D 60.00-65.99
B^+ 86.00-88.99	C 73.00-75.99	F 59.99 and below
B 83.00-85.99	C^- 69.00-72.99	

Although there is no extra-credit for this class, the tests will include extra-credit questions.

Late penalty

A late penalty of 5 points out of 100 may be applied daily to late submissions of your written papers.

The four short papers

These will be short, 1-2 page papers. They are not original research but are reviews of concepts and ideas relating to climate change. The topic will either be assigned or chosen by you. Short, in-class presentations will be made by you on what you found.

The two major papers

These are longer, 5 – 10 page papers. They are also not original research but cover a more in-depth investigation of current research dealing with climate change done by scientists and other professionals. The topic will most likely be chosen by you. You will submit a proposal to me for "approval."

Tests and final paper

Test questions are primarily short-answer, essay questions. There will be some arithmetic computations but these are very few in number and will be mostly found in extra-credit questions. It is not the purpose of this course to turn you into a science major.

The final paper will take the place of a final exam. Topic TBA.

Homework

Occasional homework will be assigned. These afford practice on understanding concepts discussed in class. Some will be done in class; some out of class.

Cell phone/computer usage

It is very disrespectful to yourself and others in the class to do texting, web surfing, facebook, etc. that is not related to what is being discussed in the class. I ask that you refrain from that activity while in class.

Schedule of Topics

We'll follow the general outline of the text.

I. Weather and climate; how are they distinguished. The structure and composition of the atmosphere. Climate classification.

II. How do we observe climatic change.

III. The nature of energy. Solar energy and the earth's energy balance.

IV. The greenhouse gases and the greenhouse effect. Radiative forcing.

V. More details of weather and climate.

VI. Climate of the earth's past. How do we know?

VII. Impacts of climate change.

VIII. More on the nature of energy and energy consumption.

Let me know if you have any questions.

D. W. Letcher
TCNJ
Fall 2013