Course Title & Number: **BIOL 830 Climate Change**
Credits: 3 semester
Class Time: Summer 2018,
Instructors: Dr. Nate Bickford, office Brunner 319
Contact information: Phone, 308-385-8410
Email bickfordna@unk.edu

I. COURSE DESCRIPTION:
Climate change is a difficult, contentious, and important issue. It will perhaps be the defining environmental issue of the 21st century. This course aims to address the whole complexity of climate change as an issue, by bringing together the science, impacts, economics, abatement technologies, and policy solutions into one course. Through this course, we will address several important questions. What is the scientific basis for our understanding of climate change, and in what ways is that scientific basis uncertain? What changes in climate might we expect over the coming centuries? What would be the impacts of these changes in climate for human well-being and the natural world? What are the sources of emissions of greenhouse gases? What technologies exist or might be developed to allow us to slow climate change, and what international policy solutions might be necessary or preferred?

II. COURSE MATERIALS:

Text & Supplies:
Introduction to Modern Climate Change - ISBN-10: 1107480671
National Geographic Reader: Sustainability - ISBN-10: 128506061X
National Geographic Learning Reader: Climate Change - ISBN-10: 1133935273

III. COURSE OBJECTIVES:
In accordance with the Mission and Goals of the University and the Biology program, the following course objectives have been established:

1) Describe connections between science and other disciplines, and express the relevance of life science to your daily life and health.

2) Work effectively in groups, collaborating in team investigations, providing constructive feedback to peers, and utilizing constructive feedback from peers.

3) Practice analytical laboratory skills. Identify pertinent information from current journals and judge the quality of the work described. Analyze the experiments of other scientists.

4) Integrate fundamental scientific knowledge in the solution of scientific problems. Design experiments to answer scientific questions or problems, using the scientific method.

5) Communicate scientific concepts and analytical arguments clearly and concisely, both orally and in writing. Utilize self assessment techniques and feedback from instructors to improve the quality of communication.

6) Evaluate the impact of current technologies on human culture and the environment, and consider the questions and problems society will face as technology advances.

IV. Performance Assessment: Your grade will be determined based upon the total points earned on examinations, problem solving assignments, a laboratory notebook/reports and a paper. There is no provision for doing extra or outside work for improving your grade.

Read – Read - Read
Read the chapter that we are covering before class starts. That will usually consist of reading 20-30 pages a week. If you do not read you will have trouble with the tests.
**Reading Writing Project:** Will be a reading many articles and you will need to read short essays organizing your thoughts.

**Research Essays:** There will be essays required in the class. The subject for the essay will be given as part of the National Geographic readings and the questions are in the writing sections. Your paper must have 1” margins on all borders, typed using Arial 12 point font, double spaced and at least 2.0 pages of text, exclusive of literature cited. All information from your sources should be properly credited within the body of the text. The information for the paper needs to come from books and journals, not Google. References should be included at the end of your paper utilizing an acceptable format (APA or MLA). Plagiarism will not be tolerated. You will earn an F for a plagiarized paper.

**Exam:** There will be one exam scheduled for the semester (see course schedule). Materials to be evaluated include: 1) the material discussed during classes and the indicated chapters from the text, and 2) the material from the scientific papers, lab manual and handouts. If you have to miss an exam for any reason, you will have to schedule a makeup time with the instructor and complete the makeup test within one week of the original exam date. **You will be allowed one makeup exam per semester.** The makeup exam may not be the same test as that taken by the rest of the class. Exam represent 100 points.

**Final Project and Video:** How would you solve climate change? You have infinite money and infinite charism how would you use it to solve climate change?

You will also need to create a 5 - 10 minute video as public information video. This is for the public so it needs to be interesting and moving as well convince the viewer that we need to make the changes. I want a video not a voice thread (be creative).

**End of Chapter Questions:** Do a few of questions assigned for each chapter. I will assign the questions at the beginning of each week.

**Discussions:** There will be weekly discussions that will require you to post and respond. You must post an answer and then respond to someone else's post. Make sure your replies are coherent, written in proper English using correct grammar and have at least one reference (to back up your point).

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<tr>
<th>Component</th>
<th>Points</th>
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<tr>
<td>Exam (1)</td>
<td>100 pts</td>
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<tr>
<td>Research essays</td>
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<td>Final Project</td>
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<td>Final Video</td>
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<td>End of Chapter Q</td>
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<tr>
<td>Discussions</td>
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The grading scale used for this class is as follows:

- A (93-100%), A- (90-92%), B+ (88-89%), B (83-87%), B- (80-82%), C+ (78-79%), C (73-77%), C- (70-72%), D+ (68-69%), D (63-67%), D- (60-62%), and F (below 60%).

In general, grades for the course will be assigned as:

- **A** – Indicates that the work is markedly superior and is without major problems. It is an honors grade denoting that the goals for the.

- **B** – Indicates that the work has met all of the requirements of the assignment or course at a level that is consistently above average.
C – Indicates satisfactory work that is consistently average and that meets the course goals at a sufficient level to pass.

D – Indicates the minimal achievement in order to earn credit, even though the work is below the standard required for good academic standing.

F – Indicates failure to complete an assignment or course, or work that does not fit into the requirements of the assignment or course.

Late assignments: Without a valid excuse, any assignment not turned in on time is a Late Assignment. Late assignments will be docked 10% of its total possible points per day, holidays and weekends excluded. So if a 40 pt Lab Report was due on Tuesday, you will receive 36 pts if you turn it in on Wednesday and 32 pts if you turn it in on Thursday. It does not matter if our next class will not meet until Thursday.

SUBJECT TO CHANGE This syllabus and schedule are subject to change in the event of extenuating circumstances. If you are absent from class, it is your responsibility to check on announcements or assignments made while you were absent.

STUDENTS WITH DISABILITIES

Students with Disabilities or Those Who are Pregnant
Students with disabilities or those who are pregnant are encouraged to contact me for a confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska at Kearney to provide flexible and individualized reasonable accommodation to students with documented disabilities or those who are pregnant. To receive accommodation services for a disability, students must be registered with UNK Disabilities Services Coordinator, David Brandt, in the Academic Success Office, 163 Memorial Student Affairs Building, 308-865-8214 or by email brandtdl@unk.edu. For those needing accommodation due to pregnancy, you need to visit with Student Health. The following link provides information for students and faculty regarding pregnancy rights. http://www.nwlc.org/resource/pregnant-and-parenting-students-rights-faqs-college-and-graduate-students

Attached is the link to the above statement for your convenience. http://unkcms.unk.edu/offices/disability_services/

We recently received notice that we need to include the statement below regarding Sexual Misconduct, please insert it in your syllabus as well.

Reporting Student Sexual Harassment, Sexual Violence or Sexual Assault
Reporting allegations of rape, domestic violence, dating violence, sexual assault, sexual harassment, and stalking enables the University to promptly provide support to the impacted student(s), and to take appropriate action to prevent a recurrence of such sexual misconduct and protect the campus community. Confidentiality will be respected to the greatest degree possible. Any student who believes she or he may be the victim of sexual misconduct is encouraged to report to one or more of the following resources:

Local Domestic Violence, Sexual Assault Advocacy Agency 308-237-2599

Campus Police (or Security) 308-627-4811

Title IX Coordinator 308-865-8655

Retaliation against the student making the report, whether by students or University employees, will not be tolerated.

If you have questions regarding the information in this email please contact Mary Chinnock Petroski, Human Resources Director (petroskimj@unk.edu or phone 8655).

If you have an accommodation plan please see me as soon as possible, so we can make any arrangements necessary for your learning. No accommodations can be provided until a Reasonable Accommodation
Plan is in place. Please remember, plans are not retroactive and cannot be used for assignments prior to the date of my signature.

Schedule
Week 1
Modern Climate Change
Chapter 1 – 5
Questions Chapter 1    6, 7, 8
Questions Chapter 2    2, 4, 5, 11
Questions Chapter 3    12, 13
Questions Chapter 4    5, 14
Questions Chapter 5    1, 2, 3, 5

National Geographic Learner Reader Climate Change
Under The Sun
Writing assignment

Watch these videos
https://www.youtube.com/watch?v=ab6jV4VBWZE
https://www.youtube.com/watch?v=RkdbSxyXftc

A Way Forward: Facing Climate Change

Global Warming 101

Discussion question
Is climate change a problem?

Week 2
Modern Climate Change
Chapter 6 – 10
Questions Chapter 6    3, 4
Questions Chapter 7    1, 2, 4, 5
Questions Chapter 8    1, 3, 4
Questions Chapter 9    1, 2, 3, 5, 7
Questions Chapter 10   11, 12

National Geographic Learner Reader Climate Change
Saving Energy
Writing assignment

Watch these videos
https://www.ted.com/playlists/78/climate_change_oh_it_s_real
Discussion Question
Of these videos which was most impactful and why?

Week 3
Modern Climate Change
Chapter 11 – 14
Questions Chapter 11 1, 3, 5
Questions Chapter 12 1, 4, 9, 12
Questions Chapter 13 2, 3
Questions Chapter 14 1, 2, 4, 7, 8

National Geographic Learner Reader Climate Change
Viking Weather

Watch these videos
Chasing Antarctic Ice
Is Ice Melt Altering NG Maps?
Fighting to Save Coral in the Florida Keys
Pope Advisor has Harsh Words for Climate Deniers

Discussion Question
How does climate change affect oceans? Are ocean changes more problematical than land?

Week 4
Atlas of Climate Change
Chapter 1 – 10
Questions will be sent

National Geographic Learner Reader Climate Change
The coming Storm
Watch these videos

POV: Why Are Leopard Seals Eating So Many Fur Seal Pups?

How Innovative Tech Helps Fight California’s Drought

Photo Evidence: Glacier National Park Is Melting Away

https://vimeo.com/107108296

Discussion Questions
Are celebrities useful in fighting climate change?

Week 5
Atlas of Climate Change
Chapter 11 – 16
Questions will be sent

National Geographic Learner Reader Sustainability
Iceland’s power struggle

Watch these videos

Climate Change: It’s Real. It’s Serious. And it’s up to us to Solve it

Rising Seas Are Swallowing This North American Island

Super Coral That Can Survive Global Warming

NG Live!: The Power of Photography to Prove
Discussion Questions
What do we do with climate refugees, how many will there be?

Week 6
Atlas of Climate Change
Chapter 17 – 29
Questions will be sent

National Geographic Learner Reader Sustainability
Plugging into the sun

https://www.youtube.com/watch?v=ubTJXF5MwMc
https://www.youtube.com/watch?v=tX68MzQ05IM

Discussion
What do you think is the single biggest problem with climate change, can we fix that problem and still have climate change?

Week 7
Atlas of Climate Change
Chapter 30 – 36
Questions will be sent

National Geographic Learner Reader Sustainability
Can solar save us

https://www.youtube.com/watch?v=1iCJXLMdhY
http://topdocumentaryfilms.com/earth-the-climate-wars/

Discussion Question
Is climate change a problem? If so What can you do?

Week 8
National Geographic Learner Reader Sustainability
The 21st century grid
National Geographic Learner Reader Sustainability
The Big idea
Discussion Question
Did you learn something from this class? What is the take home message for you?