**Climate Economics Segment**

 **Resource Economics Frontiers: AGEC 677:**

**One half of a 3 Credit course in Spring 2021**

**Instructor:** Bruce A. McCarl,

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https://agecon2.tamu.edu/people/faculty/mccarl-bruce/climateeconResFron.htm

**Purpose: 1.** To introduce students to the topic of climate change and its economic aspects

 **2.** To improve students ability to assess economic questions by examining and discussing approaches used in assessments regarding effects, adaptation and mitigation.

**Conduct:** Each week we will have 3 hours lecture and discussion over ZOOM at 1:30 Monday - Wednesday

**Grading** Presentations 50%

Exam 40%

Class participation 10%

One Midterm 30%

**Course Outline**

Topics to be covered (note all overheads are or will be on <http://agecon2.tamu.edu/people/faculty/mccarl-bruce/climateeconResFron.htm> )

Topic 1: Basics of Climate Change Decision Making

Topic 2: What has happened?

Topic 3: Why is this Happening?

Topic 4: What is Projected?

Topic 5: Toward Action and Economic issues

Topic 6: Economic Analysis of Climate Change: Implications for US Agriculture

Topic 7: Mitigation Policy and Assessment: With an Ag focus

Topic 8: Climate Change Adaptation

Topic 9: Agriculture, Climate Change and Adaptation

Topic 10: Valuing mitigation: Discounts, Fungibility and Agricultural GHG Offset projects

Topic 11: Mitigating via Bioenergy

Topic 12: Co-Effects of CC and GHG Mitigation Policies

Topic 13: Inter-temporal Climate Investment

Topic 14: Wrap up

**Class Procedure**

We will have a mix of instructor and student given lectures.

Students are responsible for mini lectures following up on topics discussed by the instructor using a piece from the literature in each case.

A student lecture will

1. Be given by one person

2. Cover material related to an assessment regarding a topic of a class earlier or possibly later in the term.

3. Present a topic as covered in at least three published or draft papers.

4. Not replicate the material in previous presentations.

5. Cover the following where possible

a. Technical aspects and description of issue at hand

b. Description of economic problem inherent in topic and analytic framework to approach

c. Description of quantitative approach or approaches used in addressing issue including a strengths and weaknesses discussion.

d. Review of data sources employed to address the issue.

e. Review empirical and theoretical findings relevant to issue.

e. Suggest extensions and further research needs

6. Presentations to the class will be 50% of your class grade. We will also have an exam (40%) and instructor grade on your participation (10%). The papers selected as the basis for presentations will

a. Cover an economic topic in climate change

b. Be approved for selection by the instructor

c. Be announced to the class at least 2 days before your time to present including a URL on where to access the presentation and if appropriate background material.

7. Be supported by the following materials

a. A professional quality set of power point overheads which will be used in making the presentation and then revised and turned in for a grade (30% of the presentation grade)

b. Two questions – one for discussion at the end of your presentation and one for student homework, the latter of which you collect and grade (20% of the presentation grade)

c. A short answer to the homework problem for distribution (20% of the presentation grade)

8. The presentation itself (30% of the presentation grade)

Survey Papers or places to consult in selecting papers for Presentations by Students

[IPCC 2014 working group 2 Chapter 7](http://www.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-Chap7_FINAL.pdf) (note lots of non economic references here)

[IPCC 2014 working group 3 Chapter 11](http://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_chapter11.pdf) (note lots of non economic references here)

[McCarl, B.A., A. Thayer, and J.P.H. Jones, "The Challenge of Climate Change Adaptation: An Economically Oriented Review", Journal of Agricultural and Applied Economics, forthcoming, 2016. 2363](http://agecon2.tamu.edu/people/faculty/mccarl-bruce/climateecon/2363The-Challenge-of-Climate-Change-Adaptation-final)

[McCarl, B.A., J. Chen, and A. Thayer, "Climate change and food security: threats and adaptation", Food Security in an Uncertain World : An International Perspective, edited by Andy Schmitz, forthcoming, 2016. 2374](http://agecon2.tamu.edu/people/faculty/mccarl-bruce/climateecon/2374Climate%20Change%20and%20Food%20Security_Chapter%20Draft_5.docx)

[Arunanondchai, P., C.C. Fei, A.C. Fisher, B.A. McCarl, W.W. Wang, and Y.Q. Yang, "How does climate change affect agriculture?", Routledge Handbook of Agricultural Economics, Edited by Gail Cramer, 2016. 2386](http://agecon2.tamu.edu/people/faculty/mccarl-bruce/climateecon/2386climate%20review%20afterfisher_combined.docx)

[McCarl, B.A., J.P.H. Jones, M. Kapilakanchana, M.Z. Wang, and G. Zhang, "Economic Assessment of Biofuel Production", Biofuels Production and Processing Technology, Chapter 23 in to be published by CRC/Taylor & Francis edited by David Chiaramonti and Mohammad R. Riazi, forthcoming, 2016. 2376](http://agecon2.tamu.edu/people/faculty/mccarl-bruce/climateecon/2376Book%20chapter_draftv24.docx)

[McCarl, B.A., R.D. Norton, and X.M. Wu, Assessing Climate Change Effects of IDB Projects: Concepts and Procedures, Inter-American Development Bank, Monograph No. 317, C.E. Ludeña and L. Sánchez-Aragón (eds), 2015. 2261](http://agecon2.tamu.edu/people/faculty/mccarl-bruce/climateecon/2261Vulnerability-concepts%20and%20procedures.pdf)

[McCarl, B.A., "Some Thoughts on Climate Change as an Agricultural Economic Issue", Journal of Agricultural and Applied Economics, vol 44 no 5, 299-305, 2012. 2111](http://agecon2.tamu.edu/people/faculty/mccarl-bruce/climateecon/2111SAEADocument.rtf)

[McCarl, B.A., "Permanence, Leakage, Uncertainty and Additionality in GHG Projects", Paper developed as input to book Harnessing farms and forests in the low-carbon economy: how to create, measure, and verify greenhouse gas offsets, A book developed by Environmental Defense, 2006. 1445](http://agecon2.tamu.edu/people/faculty/mccarl-bruce/climateecon/1445.pdf) and [supporting spreadsheet](http://agecon2.tamu.edu/people/faculty/mccarl-bruce/climateecon/1445eddiscount.xls) and [supporting markov chain gams program](http://agecon2.tamu.edu/people/faculty/mccarl-bruce/climateecon/1445markov.gms)

[McCarl vita](http://agecon2.tamu.edu/people/faculty/mccarl-bruce/longvita.pdf)

Choices features on climate change

 [Revisiting the Evidence and Potential Solutions on Climate Change](http://www.choicesmagazine.org/choices-magazine/theme-articles/climate-change-and-agriculture-revisiting-the-evidence-and-potential-solutions/theme-overview-revisiting-the-evidence-and-potential-solutions-on-climate-change)

 [Climate Change Economics](http://www.choicesmagazine.org/2008-1/theme/2008-1-01.htm)

 [US Agriculture in the Climate Change Squeeze](http://www.choicesmagazine.org/2004-3/climate/index.htm)

**Class relevant statements from Texas A&M**

Attendance Policy

The university views class attendance and participation as an individual student responsibility Students are expected to attend class and to complete all assignments. Please refer to Student Rule 7 in its entirety for information about excused absences, including definitions, and related documentation and timelines.

Makeup Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student’s grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor. Please refer to Student Rule 7 in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor” (Student Rule 7, Section 7.4.1). “The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence” (Student Rule 7, Section 7.4.2). Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (See Student Rule 24.)

Academic Integrity Statement and Policy

“An Aggie does not lie, cheat or steal, or tolerate those who do.” “Texas AM University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one’s work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case”

(Section 20.1.2.3, Student Rule 20).

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at aggiehonor.tamu.edu.

Americans with Disabilities Act (ADA) Policy

Texas A& M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact Disability Resources in the Student Services Building or at (979) 845-1637 or visit disability.tamu.edu. Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

Title IX and Statement on Limits to Confidentiality

Texas A& M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see University Rule 08.01.01.M1):

 The incident is reasonably believed to be discrimination or harassment.

 The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, a person who is subjected to the alleged conduct will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University’s goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with Counseling and Psychological Services (CAPS).

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University’s Title IX webpage.

Statement on Mental Health and Wellness

Texas AM University recognizes that mental health and wellness are critical factors that influence a student’s academic success and overall wellbeing. Students are encouraged to engage in healthy self- care by utilizing the resources and services available from Counseling & Psychological Services (CAPS). Students who need someone to talk to can call the TAMU Helpline (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at suicidepreventionlifeline.org.

Copyright Statement

 Please note that all handouts and supplements used in this course are copyrighted. This includes all materials generated for this class, including but not limited to syllabi, exams, in-class materials, review sheets, and lecture outlines. Materials may be downloaded or photocopied for personal use only, and may not be given or sold to other individuals.