

COURSE SYLLABUS

YEAR COURSE OFFERED: 2014

SEMESTER COURSE OFFERED: Fall

DEPARTMENT: Human Development and Consumer Sciences

COURSE NUMBER: TECH 4310

NAME OF COURSE: Future of Energy and the Environment

NAME OF INSTRUCTOR: Jim Breaux, PE, MS, APF

PREREQUISITES: ENGL 1303 or ENGL 1304

The information contained in this class syllabus is subject to change without notice. Students are expected to be aware of any additional course policies presented by the instructor during the course.

Course Time/Location:

Asynchronous Online Course; Weeks begin-end on a Monday to Sunday schedule

Contact Information

Email: jwbreaux@uh.edu

Telephone: 281-615-7558

Appointments (Virtual): By request

My policy is not to 'friend' students via Facebook!

But I do respond to texts! And I am active on Twitter if you'd like to follow along @bagelx

Learning Objectives

This course covers the intersection of three domain subjects: Strategic Foresight (Futures Studies), Energy, and the Environment.

Students are introduced to foresight research and forecasting and scenario methodologies used to understand the driving forces shaping both near-term and long-term futures of energy and environmental issues.

We will be looking at the possible futures of energy and environmental systems from a wide range of lenses including science and technology, marketplace dynamics, regulatory frameworks, business models, and human (social) systems.

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During this course, students will develop an on-going portfolio highlighting their semester work. *By the end of this course, students will be able to:*

- Explain fundamental concepts related to the future of energy and environmental systems
- Identify and challenge key assumptions used to shape forecasts and scenarios
- Assess validity of traditional baseline forecasts and alternative assumptions associated with scenarios shaping the energy sector and the environment.

Class Structure

This course is given completely online and requires students to be self-directed in their learning activities.

Students will access and submit assignments via Blackboard. Many lectures for this course are recorded by the instructor – other from a variety of subject matter experts from industry and beyond. There are additional video- and web-based presentation materials that will be used during the semester.

Audio and Video-based communication (real-time and recorded/shared) is a wonderful way to enhance learning in this course. Students are also encouraged to use video (e.g. Skype/GoogleHangout) based communication tools to communicate with the course instructor and their classmates.

First Time Taking an Online Course?

My experience of leading students through a fully online and largely self-driven course has been generally positive but not without its challenges!

In cases where students have struggled, it seems (from the instructor's perspective) to originate from offline challenges of being 'too busy' (going to school and working full-time; a heavy semester course load; family obligations, et al), an event (e.g. accident; illness) or dealing with poor planning and time management. It has less to do with the web-based format.

Being self-directed in our learning is challenging but as with any class, you want to plan ahead and avoid falling behind during the semester. The upside to this course is the degree of passion and curiosity that many students bring to the subject matter!

Life Events

Should you experience a disruptive life event (e.g. family or health related) you must contact the instructor immediately. More importantly it is essential that you speak with a University Advisor to discuss implications for your semester. Do not wait until the end of the semester to explain why you have been absent from the course since the event. Incompletes or late penalty adjustments will not be made due to poor communication with the Instructor.

Despite the lack of face-time of this online format, there is an instructor and you are encouraged to reach out for any help you need in thriving this semester!

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Course Tools:

- Blackboard – used for all weekly course assignment

Office Suite / Web Tools such as:

- MS Word (Especially track changes)
- Powerpoint
- Adobe PDF Reader

Web-based communication tools (potential list):

- Skype (Optional: for audio / video conversations)
- YouTube (Embedded inside Blackboard pages)
- Slideshare (Embedded inside Blackboard pages)
- Google Hangouts
- Diigo (Social Bookmark platform for ongoing ‘horizon scanning’)

Students may contact the instructor if they have any technical challenges with these tools! The instructor’s assumption is that students will have basic proficiency in all these platforms – otherwise contact me!!!

Coursework / Assignment Overview

- All assignments will be posted on Blackboard and all work will be submitted via Blackboard. You will get instructor feedback on all submitted assignments. You must review these comments and /or questions and have them corrected/answered when you turn in your on-going Portfolio.
- Your filename on submissions will be based on: FirstNameLastname_Week#
- Each week students are required to watch videos, read articles/reports and complete assignments.
- A detailed Product Specification document will be introduced in the first module. This specification covers the expectations for the contents of the portfolio, the collaborative project, and the book review.

Weekly assignments will have two parts:

- Exercises which will be turned in to the instructor via Blackboard - graded and returned to the student with comments (using MS Word Track changes). Answers to certain highlighted questions from instructor must be completed and submitted via Blackboard email or assignments – based on instructor directions.
- Online class participation, which will consist of reflections/summaries and responses to other student’s posts on the course message boards. (Minimum of two responses per week) There will be loose rubrics used for online participation to make sure conversations are substantive (e.g. Direct reference to material; Engagement w/ peers). Grading online class participation is subjective – but also supported with Blackboard analytics that reflect time on tasks, assignments read, et al.

Schedule:

- Weekly assignments are posted by instructor on Monday 5pm CST
- Weekly assignments are due the Sunday (11:59 pm) CST

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Quizzes / Midterm / Final

- Quizzes - Students will take occasional weekly quizzes used to validate learning of key concepts.
- Midterm based on short answers and multiple choice
- Final Project and Exam assessing the learning from your semester's work

Coursework Time

- Students can expect to have an average of 3 hours per week in regular reading/homework, video assignments, real-time discussion, and Blackboard discussion board participation.
- Extra time will be needed for special sections, midterm and final projects.

Late Work

At some point in a semester, we all become overwhelmed! But this is not an excuse to be out of contact with the instructor to let me know that an assignment will be late. If you expect to miss an assignment deadline during the course of the semester please contact the Instructor via email to arrange an alternative plan. Otherwise, late work will receive half grade deduction for each week that it is late.

Major Assignments/Exams

Grades based on the following combination:

- Class Participation/ Weekly Discussion Reflections: 20%
- Collaborative Project – Energy and Entrepreneurship 10%
- Weekly Assignments: 25%
- Midterm & Quizzes: 25%
- Final Portfolio / Final Exam: 20%

Based on A – F Grade spectrum per UH Policies.

Required Reading

There is only one required text for this course.

- “Thinking about the Future, Guidelines for Strategic Foresight”, Andy Hines and Peter Bishop, December 2, 2013
- All other required materials (text; videos) are delivered via Blackboard and web-based applications.

Recommended Reading

[Optional] **Energy: A Beginner's Guide** by Vaclav Smil

[Optional] **Limits to Growth: The 30 Year Update** by Donella Meadows, Jorgen Randers and Dennis Meadow

[Optional] **Energy at the Crossroads** by Vaclav Smil

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List of Discussion/Lecture Topics **

Week 1: Introduction to Course / Our Assumptions – Key Energy Concepts
Week 2: Futures Studies 101 & Horizon Scanning Setup
Week 3: Intro; Energy and Environment, Part 1
Week 4: Intro; Energy and Environment Part 2 - Systems Thinking
Week 5: Future of Coal; Cathedral Thinking
Week 6: Health, Wealth & Energy Demand; Demographics
Week 7: Future of Natural Gas - Unconventional Age
Week 8: Midterm
Week 9: Future of Oil & Transportation (Electrification, Biofuels & Unconventionals)
Week 10: Future of Utilities, Smart Grid, Micro grid & Distributed Power
Week 11: Future of Renewables Bio, Solar, & Electrofuels
Week 12: Analysis of Climate Change Conversation
Week 13: TBD
Exam Period Final Project / Exam

** Themes may evolve as the instructor adjusts to student interest and levels of retention. If we need to extend a theme for an extra week or introduce a new concept this schedule might change.

Disabilities:

If you have a disability and need a special accommodation consult first with the Coordinator of Health Disabilities Services, Bayou 1402, telephone 283-2627, and then discuss the accommodation with me.

Incompletes:

A grade of "I" is given only in cases of documented emergency or special circumstances late in the semester, provided that the student has been making satisfactory progress. An Incomplete Grade Contract must be completed.

Withdrawals:

Refer to class schedule for dates to withdraw without evaluation from a course.

Academic Honesty Policy:

All UH students are responsible for knowing the standards of academic honesty. Please refer to the UH catalog. Plagiarism, using research without citations or using a created production (such as other people's words) without quotations or citations, will result in a grade penalty or failure of the course. Internet sources must be credited according to the sites recommended citation guideline if available. If no citation guideline is provided by the web source, then the date, URL site owner, and author must be included with the web material used.

Good luck this semester! Glad to have you in class!!