**ENVS 3304 – Alternative Energy Technologies**

**Virtual Campus Syllabus**

**WINTER 2019**

**SPECIAL NOTES:**

**1. COURSE FORMAT:** This is the third offering of this course in an on-line format. Previous face-2-face offerings of the course emphasized hands-on work with home-scale renewable energy systems. The on-line version of this course will focus on a survey of available information on wind, solar, water, geothermal, and other alternative energy sources, and how they are evolving their economic sustainability.

**2. RESOURCES:** Alternative energy technologies are rapidly changing. Because of this, there are no texts that would serve our needs. So, Dr. Grover will be developing and posting resources for each week’s materials.

**3. WHO SHOULD TAKE THIS COURSE?** Although this course is designed primarily for students majoring or minoring in Environmental Science or Environmental Studies, responsible students who are interested in alternative energy topics should consider taking this course.

**4. HOW WILL THIS COURSE FIT INTO YOUR DEGREE PLAN?** This course will satisfy ENVS science requirements for ENVS/ENST majors or minors, and will meet MSL requirements for other BAS degree plans.

**WAYLAND BAPTIST UNIVERSITY**

**WBUonline**

**SCHOOL OF MATHEMATICS & SCIENCES**

## WAYLAND MISSION STATEMENT:

Wayland Baptist University exists to educate students in an academically challenging, learning-focused and distinctively Christian environment for professional success and service to God and humankind.

## Course:

**ENVS 3304 – VC01 – Alternative Energy Technologies**

## Term:

**Winter 2019**

Instructor:Dr. Herb Grover

Phone: 806-292-2082 (email or text preferred; cell reception sometimes unavailable)

Office:Online from home location

Office Hours**:** Online

Email:[herbert.grover@wayland.wbu.edu](mailto:herbert.grover@wayland.wbu.edu)

## Catalog Description:

Survey of alternative technologies to use wind, solar, water, biofuels, and geo thermal energy sources at local, regional, and national scales.

## Prerequisite:

Three (3) hours or more of life or physical science, or school approval.

## Required Materials:

Materials will be provided by the instructor.

## Course website:

A course website has been established on WBU’s Blackboard (Bb) server. Each student is REQUIRED to establish an active account for this website and to log on to Bb regularly for posted lecture notes, messages, assignments, handouts, and quizzes.

## Course Outcome Competencies:

By completing this course, students will be able to:

1. critically evaluate the quality and utility of technologies designed to harness energy from wind, solar, biofuel and other renewable or alternative energy sources.

2. organize and compile data from publically available databases and course-generated data to assess renewable energy sources, and

3. formulate a coherent analysis of data and information and present their analysis in the form of written and oral reports.

## Attendance/Class Participation Policy:

In accordance with university policy, attendance in this course will be documented through a student’s active engagement in weekly assignments, quizzes, or similar course elements requiring deliverables or direct communication between the student and the instructor through the course Black Board (Bb) site. Instructions for completing these assignments will be posted by the instructor prior to or at the beginning of each week of the class. Failure to attend or participate in this class may result in administrative withdrawal from the course or grade reductions. Failure to meet posted deadlines will result in a grade of zero or point reductions for the assignments affected.

## Statement on Plagiarism and Academic Dishonesty:

Wayland Baptist University observes a zero tolerance policy regarding academic dishonesty. Per university policy as described in the academic catalog, all cases of academic dishonesty will be reported and second offenses will result in suspension from the university.

## Disability Statement:

In compliance with the Americans with Disabilities Act of 1990 (ADA), it is the policy of Wayland Baptist University that no otherwise qualified person with a disability be excluded from participation in, be denied the benefits of, or be subject to discrimination under any educational program or activity in the university.  The Coordinator of Counseling Services serves as the coordinator of students with a disability and should be contacted concerning accommodation requests at (806) 291- 3765.  Documentation of a disability must accompany any request for accommodations. Students should inform the instructor of existing disabilities the first class meeting.

## Course Requirements:

Students will be required to access readings, videos, or podcasts posted on Bb or through various internet sources. Assignments may require participation in various interactive tools including discussion boards, journals, on-line quizzes or exams, written assignments, and student-produced video or audio files. Access to a reliable and reasonably fast internet connection is essential to successful participation in this course.

## Course communication policy:

Wayland email is the official method of communication between instructors and students taking courses through Wayland Baptist University. Students are REQUIRED to establish and activate their Wayland email account. Instructors reserve the right to deny email from other sources.

## Grading:

Your course grade will be determined based on the number of points you earn on lecture exams, chapter quizzes, research paper or field assignment, and through class participation, as described below.

*Exams*: Lecture exam grades will be worth 60% of your final grade. Lecture exams will consist of a combination of multiple choice, T/F, matching, short answer and essay questions as appropriate for the material.

*Quizzes:* There will be on-line quizzes accompanying each section of material. The overall quiz average will count as one lecture exam grade.

*Midterm/Final*: In accordance with School of Math and Science policy, there will be ONE major PROCTORED lecture exam given during the term. Information regarding options for face-to-face or remote proctoring services may be obtained from Virtual Campus.

*Research Paper, Making It Personal Assignments, and Field Assignments*: Students may be required to prepare a research paper or complete alternative assignments as described in posted instructions and may be required to visit local state parks, municipal facilities, or other facilities as appropriate for the assignment. There may also be “Making It Personal” assignments accompanying many topics that will require the student to examine the topic in greater detail. These assignments will be worth 30% of your final grade.

*Class Participation:* Class participation will contribute 10% to your final grade. This grade will be based on exercises posted on Bb; reflective essays or similar assignments; timely submittal of posted assignments; and on participation in discussion board or blogging activities and other assignments as appropriate. Some Making It Personal assignments may apply to class participation grades.

*Final Grades*: Final letter grades will be assigned as follows: A = 90-100%; B = 80-89%; C = 70-79%; D = 60-69%; and F = 59% or less.

**Exam and assignment deadlines will be adhered to! Any variance from posted deadlines must be arranged IN ADVANCE! Students requesting extensions must communicate with the instructor in advance and provide verification of the extenuating circumstances leading to the request.**

## Academic Standards:

Students shall have protection through orderly procedures against prejudices or capricious academic evaluation. A student who believes that he or she has not been held to realistic academic standards, just evaluation procedures, or appropriate grading, may appeal the final grade given in the course by using the student grade appeal process described in the Academic Catalog. Appeals may not be made for advanced placement examinations or course bypass examinations. Appeals are limited to the final course grade, which may be upheld, raised, or lowered at any stage of the appeal process. Any recommendation to lower a course grade must be submitted through the Executive Vice President/Provost to the Faculty Assembly Grade Appeals Committee for review and approval. The Faculty Assembly Grade Appeals Committee may instruct that the course grade be upheld, raised, or lowered to a more proper evaluation.

## Tentative Class Schedule:

The attached class schedule is subject to modification by the instructor. Actual exam dates may change. These changes will be posted on Black Board to give students sufficient opportunity to adjust their schedules accordingly. Week numbers reflect the active academic periods – Thanksgiving break from Nov 25th to 29th; and Christmas Break from Dec 23rd to Jan 3rd are not shown.

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| **ENVS 3304 – Alternative Energy Technologies** | | |
| **Tentative Lecture Schedule\*** | | |
| **WEEK** | **Topic** | **Readings** |
| 1 | Intro - What is Energy & How Is It Measured |  |
|  |  |  |
| 2 | Energy Production & Use |  |
|  |  |  |
| 3 | Renewable Energy Economics |  |
|  |  |  |
| 4 | Electricity Basics |  |
|  |  |  |
| 5 | Wind Turbine Basics |  |
|  |  |  |
| 6 | Solar Basics |  |
|  |  |  |
| 7 | Fuel Cells |  |
|  |  |  |
| 8 | Bio Fuels |  |
|  |  |  |
| 9 | Geo Thermal |  |
|  |  |  |
| 10 | TBA |  |
|  |  |  |
| **11** | **INTEGRATION & FINAL EXAM** |  |
|  |  |  |
|  | **\* NOTE 1: Lecture/topic schedules are subject to change** | |
|  | **Changes in schedules will be posted on Blackboard.** | |