Satan Science: Misunderstood and Misused Concepts of Biology
GS 1181

Class meets MW 12:00-12:50 pm Cavness 023

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Office Hours: M 11-12, 1-3; W 10:30-12, 1-2; other times by appointment

Course Description
Science literacy and an understanding of the scientific process are in decline. This signature course is designed to partially address these concerns by focusing on commonly misunderstood and often misused concepts of biology. We will briefly discuss the scientific process and the value of evidence based conclusions, the dangers of Lysenkoism, followed by conversations about what a theory and hypothesis actually represent from a scientific point of view, and of how these are regularly misunderstood by the general public. Finally, we will have detailed discussions about important biological concepts that are commonly misunderstood or intentionally misused to sway public opinion. Topics to discuss include (but are not limited to) evolution, climate change, and vaccinations. By the end of the course, students should better understand the importance of these scientific conclusions, be able to critically evaluate scientific data, and be able to identify misleading, non-scientific arguments.

Core Student Learning Outcomes
Upon completion of this course, students will be able to:
1. Gather, analyze, evaluate, and synthesize information relevant to key biological issues (e.g., vaccinations, evolution, climate change)
2. Develop, interpret, and express ideas through effective writing
3. Locate campus resources to solve problems and answer questions

Method of Assessing Learning Outcomes
Core student learning outcomes will be assessed through course assignments.

Course Requirements
Two article summaries related to misunderstood concepts in Biology
Information literacy and critical thinking module
Participation in a University event
Various in class and out of class assignments

Text, Material Required
Access to Blackboard – instructor presentations will be posted and required viewing prior to class
All available resources available in the library and on the internet

Blackboard Assignments
The abbreviated nature of this course often does not permit the presentation of material in a traditional lecture format. On several occasions, pre-class assignments/worksheets will be posted on blackboard. These assignments will require reading and you are free to use any resource you wish. They are due at the beginning of class as noted in the class schedule.
Summary (Learning Outcomes #1, #2, & #3)
Each student will be assigned a paper topic dealing with vaccines and global climate change. The student will write a summary that answers some basic questions relevant to the assigned topic. Each summary requires 2 sources from a peer reviewed scientific journals. The summary is limited to 1 page. Topics and due dates will be assigned throughout the course.

Information Literacy and Critical Thinking
Each student will complete the information literacy module as posted on Blackboard. This module will introduce students to topics required by most classes across the university including search terms, citing sources, and plagiarism.

University Events
Each student will attend 1 university or campus-wide event. Opportunities will be posted on Blackboard. A photo that proves attendance must be taken to earn credit for this course requirement.

Attendance and Participation
Due to the limited number of class meetings, attendance is required for this course. Missing, arriving late, or leaving early from class will result in a 1 percentage point deduction from the final course grade. Only a doctor's note will excuse an absence. Participation will be graded based on answering questions in class and completing tasks as instructed.

Electronics Use
There is a distinction between keeping notes and participating in social media. Cell phone use is prohibited during class. Texting, viewing email, or other activities on a cell phone will result in a possible deduction of the final course grade for each occurrence. Tablets and computer use is allowed if it is being used for the class. Using it to complete assignments that should have been completed prior to the start of class constitutes a distraction similar to checking email, surfing the web, using social media, and etc.

Religious Holy Day
A student who intends to observe a religious holy day should make that intention known in writing to the instructor during the first week of the semester and one week prior to the absence. Assignments (quiz, exam, in-class activity) can be completed within one week after the absence.

Point/Percentage Breakdown
Final grades will be assigned as follows: A=100-90%, B=89-80%, C=79-70%, D=69-60%, F=59% or lower. Standard rounding methods will be used (round up for 0.5 or higher). The percentage breakdown for each portion of the course is listed below:

- Attendance/Participation: 20%
- Blackboard worksheets: 20%
- Summary #1: 20%
- Summary #2: 20%
- Information Literacy Module: 10%
- University Event: 10%

Assignments and Late Work
All assignments are due at the beginning of class on the prescribed due date. I require a typed, hard copy of the summaries at the start of class. Literature cited should be on a separate page and does not count
towards the one page requirement for the written summaries. There will be no make-ups for any assignment.

**Academic Dishonesty**

Angelo State University expects its students to maintain complete honesty and integrity in their academic pursuits. Students are responsible for understanding the Academic Honor Code, which is contained in both print and web versions of the Student Handbook. Any form of cheating or plagiarism in this course will result in a zero on the assignment or exam for all involved. Working with others is encouraged, but each person is responsible for their own work. Allowing others access to your work potentially involves you in cheating. If you have any question about what constitutes plagiarism or cheating, then please contact the instructor. Further information regarding academic dishonesty and university policy may be found in the Student handbook ([http://www.angelo.edu/student-handbook/](http://www.angelo.edu/student-handbook/)).

**Special Accommodations**

If any member of the class feels that he/she has a disability and needs special accommodations please contact the Student Affairs Office, Houston Harte University Center, Suite 112, 942-2047 or studentservices@angelo.edu.

**Miscellanea**

– Check email every day! Most faculty communicate with the class via email or blackboard, and blackboard will email you whenever an announcement is made to the class. Failure to check email is not a valid excuse for missing due dates.

– Due dates and topics are posted on the syllabus, on the instructional handouts, and/or on blackboard. Moreover, I will state in lecture when assignments are due.
Class Schedule: This schedule is tentative and subject to change

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Due at start of class</th>
<th>Other due dates</th>
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<tbody>
<tr>
<td>1</td>
<td>8/27/18</td>
<td>Introduction</td>
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<td></td>
<td>8/29/18</td>
<td>What is science?</td>
<td>Worksheet #1</td>
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<tr>
<td>2</td>
<td>9/3/18</td>
<td>NO CLASS</td>
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<td>9/5/18</td>
<td>Hypotheses and Theories</td>
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<td>Information Literacy (due by Friday)</td>
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<td>3</td>
<td>9/10/18</td>
<td>Peer reviewed literature</td>
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<td>9/12/18</td>
<td>Evolution</td>
<td>Worksheet #2</td>
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<td>9/17/18</td>
<td>Evolutionary mechanisms</td>
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<td>9/19/18</td>
<td>What is a vaccine?</td>
<td>Worksheet #3</td>
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<td>9/24/18</td>
<td>Primer on immune Function</td>
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<td>9/26/18</td>
<td>Problems with not Vaccinating</td>
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<td>1st summary due</td>
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<td>10/1/18</td>
<td>A warming Earth</td>
<td>Worksheet #4</td>
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<td>10/3/18</td>
<td>Not so “permafrost”</td>
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<td>10/8/18</td>
<td>Changing oceans</td>
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<td>10/10/18</td>
<td>Global threats and responses</td>
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<td>10/15/18</td>
<td>Lysenkoism</td>
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<td>2nd summary due</td>
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<td>10/17/18</td>
<td>Science literacy:</td>
<td>Final thoughts</td>
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