Syllabus

Energy Flow in Natural and Man-made Systems
1188-FIU01-EVR-3010-SECRCV-85403

GENERAL INFORMATION

Professor Information

Instructor: Rodolfo Rego, M.S.  
Office: AHC5 384 (MMC) 
Phone: 305-348-1478 
Office Hours: Canvas: Wednesday 1-3pm, Appointment: e-mail for additional questions 
E-mail: rego@fiu.edu 
Website: FIU Earth and Environmental Faculty

NOTE: This course requires you to check daily your student portal on Canvas (http://online.fiu.edu/login/) since all of the assignments and lectures will be posted there.

Course Description And Purpose

The course is designed to acquaint students with the principles of energy flow in the environment and will focus on introduction to the physical science principles and concepts needed to understand energy issues. It will also examine the energy use and efficiency, current energy sources, environment impacts of energy use, climate change and energy, and future renewable energy alternatives.

Course Objectives

After completing this course, students should be able to apply their knowledge of Energy Flow in the Environment to

1. apply scientific principles and theories to problem solving;
2. test scientific hypothesis by applying the scientific method;
3. evaluate scientific statements; and
4. interpret new information within the context of existing knowledge.

Course Awards

Affordability Counts

This course has been awarded the Affordability Counts Medalion. The Affordability Counts initiative at FIU seeks to make learning more affordable by reducing the cost of course materials to $60 or less. Find out more by visiting the Affordability Counts website at lowcost.fiu.edu.

IMPORTANT INFORMATION

Policies

Please review the FIU’s Policies webpage. The policies webpage contains essential information regarding guidelines relevant to all courses at FIU, as well as additional information about acceptable netiquette for online courses.
Cheating, plagiarism and other forms of academic dishonesty are very serious forms of academic misconduct and will not be tolerated. University policies for academic misconduct are very strict, and the results of cheating and/or plagiarism can be a failing grade or ultimately expulsion from the University.

Please be aware that FIU and Department of Environmental Studies academic honesty policies will be upheld. Plagiarism in any form will not be tolerated and is considered cheating. This includes copying text directly from websites, previously written papers, and other sources without acknowledging the original source or author. Cheating on exams also has serious consequences, up to and including expulsion. Plagiarized film reviews are easy to detect and find and last semester several people flunked the course for using them.

Notice: If a student has a disability and needs assistance with class, please contact the Disability Resource Center (GC 190; 305-348-3532). It is the responsibility of each student to work with the Center and Instructor to make arrangements as needed for their accommodations.

Course Late Assignment Policy

All assignments submitted after the assignment due date are subject to the following deductions.

<table>
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<tr>
<th># of Days Late</th>
<th>Deduction</th>
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<tr>
<td>1 - 2</td>
<td>10%</td>
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<tr>
<td>3 - 5</td>
<td>15%</td>
</tr>
<tr>
<td>7 - 10</td>
<td>20%</td>
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<tr>
<td>10 - 14</td>
<td>25%</td>
</tr>
<tr>
<td>&gt; 14</td>
<td>Cannot be submitted</td>
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</table>

You must contact your instructor before attempting late assignments.

Technical Requirements & Skills

One of the greatest barriers to taking an online course is a lack of basic computer literacy. By computer literacy we mean being able to manage and organize computer files efficiently, and learning to use your computer's operating system and software quickly and easily. Keep in mind that this is not a computer literacy course; but students enrolled in online courses are expected to have moderate proficiency using a computer. Please go to the "What's Required" webpage to find out more information on this subject.

This course utilizes the following tools:

- Youtube
- Zoom
- HonorLock (Computer with WebCam and Microphone Required)

Please visit our Technical Requirements webpage for additional information.

Accessibility And Accommodation

The Disability Resource Center collaborates with students, faculty, staff, and community members to create diverse learning environments that are usable, equitable, inclusive and sustainable. The DRC provides FIU students with disabilities the necessary support to successfully complete their education and participate in activities available to all students. If you have a diagnosed disability and plan to utilize academic accommodations, please contact the Center at 305-348-3532 or visit them at the Graham Center GC 190.

- Please visit our ADA Compliance webpage for information about accessibility involving the tools used in this course.
- Please visit Canvas Accessibility webpage for more information.
- For additional assistance please contact FIU's Disability Resource Center.

Notice: If a student has a disability and needs assistance with class, please contact the Disability Resource Center (GC 190; 305-348-3532). It is the responsibility of each student to work with the Center and Instructor to make arrangements as needed for their accommodations.
Academic Misconduct Statement

Florida International University is a community dedicated to generating and imparting knowledge through excellent teaching and research, the rigorous and respectful exchange of ideas and community service. All students should respect the right of others to have an equitable opportunity to learn and honestly to demonstrate the quality of their learning. Therefore, all students are expected to adhere to a standard of academic conduct, which demonstrates respect for themselves, their fellow students, and the educational mission of the University. All students are deemed by the University to understand that if they are found responsible for academic misconduct, they will be subject to the Academic Misconduct procedures and sanctions, as outlined in the Student Handbook.

Academic Misconduct includes: Cheating – The unauthorized use of books, notes, aids, electronic sources; or assistance from another person with respect to examinations, course assignments, field service reports, class recitations; or the unauthorized possession of examination papers or course materials, whether originally authorized or not. Plagiarism – The use and appropriation of another's work without any indication of the source and the representation of such work as the student's own. Any student who fails to give credit for ideas, expressions or materials taken from another source, including internet sources, is responsible for plagiarism.

Learn more about the academic integrity policies and procedures as well as student resources that can help you prepare for a successful semester.

Course Prerequisites

College Algebra

Proctored Exam Policy

This online section does not require an on-campus exam; however, Honorlock is used for the Midterm and Final Exams.

Assessments

In order to mitigate any issues with your computer and online assessments, it is very important that you take the "Practice Quiz" from each computer you will be using to take your graded quizzes and exams. It is your responsibility to make sure your computer meets the minimum hardware requirements.

Assessments in this course are not compatible with mobile devices and should not be taken through a mobile phone or a tablet. If you need further assistance please contact FIU Online Support Services.

If you encounter a problem when conducting an assessment (e.g., exam, quiz, discussion, etc.) and/or have problems uploading documents to the assignment dropbox, then you must contact FIU online for assistance. They will contact me with additional instructions at which point a determination will be made regarding the next course of action. There is no exception to this policy.

Textbook

Energy Explained

Energy Information Administration (EIA)

The information obtained in this text can be found at http://www.eia.gov/energyexplained/

Provided at no cost to students
Expectations Of This Course

This is an online course, which means most (if not all) of the course work will be conducted online. Expectations for performance in an online course are the same for a traditional course. In fact, online courses require a degree of self-motivation, self-discipline, and technology skills which can make these courses more demanding for some students.

Students are expected to:

- Review the how to get started information located in the course content
- Introduce yourself to the class during the first week by posting a self introduction video in the appropriate blog
- Take the practice quiz to ensure that your computer is compatible with Blackboard
- Interact online with instructor/s and peers
- Review and follow the course calendar
- Log in to the course at least four (4) times per week
- Respond to discussions within: initial post in three (3) days and all responses in seven (7) days. (See Discussion section below)
- Respond to messages within no more than two (2) days
- Submit assignments by the corresponding deadline

The instructor will:

- Log in to the course at least five (5) times per week
- Respond to Canvas messages and Course Submission Comments within two (2) days.
- Grade assignments within ten (10) days of the assignment deadline.

COURSE DETAIL

Course Communication

Communication in this course will take place via Canvas Inbox.

It is recommended that students check their inbox routinely to ensure up-to-date communication and adjust the notification settings accordingly.

Announcements will be posted throughout the semester discussing various topics relating the course. Announcements can also contain important reminders about due dates and/or discussion certain elements of topics covered during the course. It is extremely important that you check and read the announcements on a regular basis.

Visit our Writing Resources webpage for more information on professional writing and technical communication skills.

Discussions

Discussions and participation are required, just as if you were in a face to face class. Online does not mean silent or student guided. The discussion forums are due:

- First Posted by Friday of Week
- Second posted at the end of the week assigned (i.e., Monday of week assigned before 12:00am).

The grade will be dependent on thoughtful participation during the discussion forums. Responses such as ‘I agree’ or ‘yea...what he said’ will result in zero points of credit. You can earn your grade and exemplary participation will earn higher scores. Calculations for the discussions must be submitted to the appropriate dropbox to receive full credit. Read the rubric below for more information. All instructions for each discussion is presented within the assignment.

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>EXEMPLARY</th>
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<tr>
<td>Calculations</td>
<td>Well-developed calculations without errors.</td>
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<tr>
<td>Evidence of Critical Thinking</td>
<td>Clear evidence of critical thinking - application, analysis, synthesis and evaluation. Postings are characterized by clarity of argument, depth of insight into theoretical issues,</td>
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Assessments

In order to mitigate any issues with your computer and online assessments, it is very important that you take the "Practice Quiz" from each computer you will be using to take your graded quizzes and exams. It is your responsibility to make sure your computer meets the minimum hardware requirements.

Assessments in this course are not compatible with mobile devices and should not be taken through a mobile phone or a tablet. If you need further assistance please contact FIU Online Support Services.

The exams for this course will be monitored by an online integrity system to ensure students' compliance with the University's Code of Academic Integrity. To avoid being deemed in violation of the Code, students may not access unsolicited aids during exams, including, but not limited to: test-banks, online search engines, unauthorized web applications, and other means, via their test-taking device or any other electronic device. Students also may not receive nor provide unauthorized assistance to/from other persons, or copy, save, or share unauthorized copies of exams.

For additional resources concerning Honorlock, feel free to visit the Honorlock Proctoring Student Resources Page.

Energy Project

Students complete a project using the Buildings Industry Transportation Electricity Scenarios (BITES) Tool provided by the National Renewable Energy Laboratory (NREL). Instructions and details for this assignment will be provided in the appropriate course module.

https://bites.nrel.gov/index.php

Zoom Meetings

Zoom is a video conference tool that you can use to interact with your professor and fellow students by sharing screens, chatting, broadcasting live video/audio, and taking part in other interactive online activities. We will be utilizing this tool to conduct office hours, and questions about the course and assignments. Zoom Meetings will be held on the following dates/time:

Meetings will be available on Wednesdays from 1pm - 3pm

Use this link to access the Zoom Test Meeting Room. This meeting room is available to test out the software before joining an actual session.

Reference the provided links to access Zoom student tutorials to learn about the tool, how to access your meeting room, and share your screen.

- [Download Zoom](#)
- [Joining a Zoom Meeting](#)
- [Enabling and Testing Audio & Webcam](#)
- [Chat (Professors): Students look at attendees section for instructions](#)
- [How Do I Share My Screen](#)

Grading
### COURSE CALENDAR

#### Module Weekly Schedule

**Introduction to Course**

**Week 1**
*August 20 - August 27*

- **Course Introduction**
- **Assignment:**
  1. Introduce yourself to the class
  2. Practice Quiz
  3. Start Unit Readings

#### Module 1: Energy Basics

**Date**

**Week 2**
*August 27 - September 3*

- **Task**
  - Readings:
    1. What is Energy?
    2. Units and Calculators.
    4. Use of Energy.
  - **Assignment:**
    1. Discussion #1
    2. Problem Set #1 Posted

#### Module 2: Energy and the Environment

**Date**

**Week 3**
*September 3 - September 10*

- **Task**
  - Readings:
    1. International Energy Facts
    2. Energy and the Environment
    3. Energy Conservation
  - **Assignment:**
    1. Problem Set #1 Due
Module 3: Fossil Fuels

<table>
<thead>
<tr>
<th>Date</th>
<th>Task</th>
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<tbody>
<tr>
<td><strong>Week 4</strong></td>
<td><strong>Readings:</strong></td>
</tr>
<tr>
<td><strong>September 10 - 17</strong></td>
<td>1. Oil and Petroleum Products</td>
</tr>
<tr>
<td></td>
<td>2. Gasoline</td>
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<td>3. Diesel Fuel</td>
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<td><strong>Assignment:</strong></td>
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<tr>
<td></td>
<td>1. Quiz #1</td>
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<tr>
<td><strong>Readings:</strong></td>
<td></td>
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<tr>
<td></td>
<td>1. Heating Oil</td>
</tr>
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<td></td>
<td>2. Unconventional Fuels (Shale Gas and Tar Sands)</td>
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<tr>
<td><strong>Week 5</strong></td>
<td><strong>Assignment:</strong></td>
</tr>
<tr>
<td><strong>September 17 - 24</strong></td>
<td>1. Energy Discussion #2</td>
</tr>
<tr>
<td></td>
<td>2. Problem Set #2 Posted</td>
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<tr>
<td><strong>Readings:</strong></td>
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<tr>
<td></td>
<td>1. Hydrocarbon Gas Liquids</td>
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<td></td>
<td>2. Natural Gas</td>
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<td>3. Coal</td>
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<td><strong>Week 6</strong></td>
<td><strong>Assignment:</strong></td>
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<td><strong>September 24 - 1</strong></td>
<td>1. Problem Set #2 Due</td>
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Module 4: Alternatives to Fossil Fuels

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<tbody>
<tr>
<td><strong>Week 7</strong></td>
<td><strong>1. Quiz #2</strong></td>
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<tr>
<td><strong>October 1 - 8</strong></td>
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<tr>
<td><strong>Week 8</strong></td>
<td><strong>1. Midterm Exam (Calculation Based - Honorlock)</strong></td>
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<td><strong>October 8 - 15</strong></td>
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<tr>
<td><strong>Week 9</strong></td>
<td><strong>Readings:</strong></td>
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<tr>
<td><strong>October 15 - 22</strong></td>
<td>1. Nuclear</td>
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<td>2. Heat Engines</td>
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<td><strong>Assignment:</strong></td>
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<tr>
<td></td>
<td>1. Discussion #3</td>
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<td>2. Problem Set #3 Posted</td>
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## Syllabus

### Week 10: October 22 - October 29

**Hydropower**

#### Assignment:
- Problem Set #3 Due
- Energy Project Posted

#### Readings:
- Biomass
- Biofuels: Ethanol & Biodiesel

### Week 11: October 29 - November 5

#### Assignment:
- Quiz #3

#### Readings:
- Wind
- Geothermal
- Solar

### Week 12: November 5 - November 12

#### Assignment:
- Energy Discussion #4
- Problem Set #4 Posted

### Module 5: Heating and Cooling Buildings

#### Week 13: November 12 - November 19

**Heating and Cooling Buildings**

#### Assignment:
- Problem Set #4 Due

#### Readings:
- Heating and Cooling Buildings

#### Week 14: November 19 - November 26 (Thanksgiving Holiday)

**Readings:**
- Prepare for Final Exam

### Module 6: Secondary Sources

#### Week 15: November 26 - December 3

**Readings:**
- Electricity
### Weekly Schedule

**Date** | **Task**
---|---
| 2. Hydrogen
**Assignment:**
| 1. Quiz #4
| 2. Energy Project Due

**Week 16**

*December 3 - December 8*  
1. Final Exam (Calculation Based - Honorlock)

*Ends on Saturday

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**Description/Title goes here**

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<th>Date</th>
<th>Tasks</th>
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<tbody>
<tr>
<td>Mar. 1 - 7</td>
<td><strong>Supports Learning Objectives:</strong></td>
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<td><strong>Tasks:</strong></td>
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<td>Mar. 8 - 14</td>
<td><strong>Supports Learning Objectives:</strong></td>
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<td><strong>Tasks:</strong></td>
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<tr>
<td>Mar. 15 - 21</td>
<td><strong>Supports Learning Objectives:</strong></td>
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<td><strong>Tasks:</strong></td>
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<tr>
<td>Mar. 22 - 29</td>
<td><strong>Supports Learning Objectives:</strong></td>
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<td><strong>Tasks:</strong></td>
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