Conservation Strategies

I. Course Overview
   A. Grade Level: 9-12
   B. Credits: 10
   C. Pre-Requisites: None
   D. Course Description: Conservation Strategies is one of two courses that make up the Alternative Energy Pathway. It highlights those careers related to Energy and Conservation that require skills related to marketing, promotion, sales, public relations, and finance, including skills needed for the sales of photovoltaic systems, energy retrofits, and efficient vehicles. Students will learn the skills to build and present effective sales campaigns as well as the essential computer and analytic skills used to develop and evaluate programs that lead to behavioral changes that reduce carbon footprints. The course will help students understand the economic and personal decisions that affect buying behavior, as well as the strategies used by governments, business and community organizations to influence our decisions. Successful students will design and market a product that reduces energy use or develop a public relations campaign that reduces energy use. After implementing their campaign, using a variety of media and communication techniques, they will evaluate how effective that marketing or public relations campaign has been.

II. Course Purpose: Goals and Student Outcomes

Upon successful completion of the course:

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<th>Foundation Standards</th>
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<tr>
<td>A.</td>
<td>1.0 (WHSST 11-12.1), 2.0, 5.0</td>
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<td>Pathway Standards</td>
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<td>A1.0, A4.0</td>
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<td>B.</td>
<td>1.0 (ESS, AD12.3, PE 12.1), 5.3</td>
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<td>C.</td>
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<td>A1.0, A2.0, A3.0, A6.0, B1.0</td>
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<td>D.</td>
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<td>that influence housing choices and the environmental impact of those choices</td>
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<td>G.</td>
<td>Students will understand how interest rates and financial considerations affect purchasing decisions</td>
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<td>H.</td>
<td>Students will understand how it is possible to organize as citizens and business organizations to influence government policy and will understand how public policy can influence personal behavior</td>
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<td>I.</td>
<td>Students will understand how data is gathered about consumers and how technology is used to make marketing decisions</td>
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<td>Students will understand customer behavior and ways to build strong customer relationships</td>
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<td>K.</td>
<td>Students will learn how to plan and develop a public relations campaign and use a variety of media and social networks to implement the campaign, including social media, blogs, billboards, and local print publications</td>
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<td>L.</td>
<td>Students will know how to use a variety of computer applications to analyze data and to create charts and graphs so that data can be understood</td>
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<td>M.</td>
<td>Students will research policy, management, sales, and marketing career opportunities in transportation, energy, and fields that promote conservation and efficiency</td>
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<td>N.</td>
<td>Students will know how to prepare basic employment documents including job applications and resumes.</td>
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### III. Course Outline

**A.** The current understanding of climate change
1. Critical thinking—trying to be objective to understand what is really happening
2. Population growth
3. Expanding global demand for resources
4. Observable changes in the climate and the environment
5. How models to predict future events are developed

**B.** The relationship between economics and the environment
1. The tragedy of the commons
   a. Simulations that explain economic behavior
   b. Evaluating the underlying presumptions in simulations
2. Public versus private interests
3. Competing interest groups around economic and environmental issues

C. Market Economics
1. Adam Smith and the Invisible Hand
2. The law of supply and demand
   a. Demand elasticity
   b. Supply elasticity
3. Entrepreneurship
4. Conglomeration and multinational corporations
   a. What is a corporation?
   b. Vertical and horizontal integration of companies
   c. Benefits and drawbacks of large corporations
5. Strategies for and barriers to market entry
6. Government influence of markets
   a. Subsidies
   b. Taxes

D. Food, Glorious Food
1. The biology of food production
2. Small farms, organic farms
3. Corporate food production from Armour and Swift to Archer Daniel Midlands and Monsanto—the benefits and pitfalls of industrial farming
4. The modern American diet
   a. What do we eat? Looking at market data about the food Americans consume
   b. The battle for our food dollars—the marketing of food in the United States
      ▪ Word of mouth
      ▪ Advertising
      ▪ The modern supermarket
   c. Government policies that influence food production
      ▪ Farm subsidies
      ▪ Other subsidies
      ▪ Patent law
      ▪ Free Trade Agreements, tariffs and quotas
      ▪ Organizations that influence food policy
   d. How to write a survey that evaluates food choices
   e. Strategies that change public behavior
      ▪ Bottle and bag deposits
      ▪ Sin taxes
      ▪ Public relations campaigns
   f. A healthy food banquet

E. We’ve Got a Ticket to Ride—Transportation in the 21st Century
1. A survey of our current transportation system
   a. Cars with internal combustion engines
   b. Highways and street networks
   c. Bike paths and sidewalks
d. Busses and subway systems  
e. Trucking  
f. Airports and railroads

2. Personal transportation  
a. Bicycles & Electric Bikes  
b. Innovative cars  
   ▪ Hybrids  
   ▪ Electric Cars  
c. Selling a product – converting features to benefits  
   ▪ Electric or hybrid vehicle sales role plays that demonstrate product understanding and sales skills

3. Public transportation  
a. The local system—SamTrans, BART and CalTrain  
   ▪ Travel using the local system  
   ▪ The real costs of public transportation, the real savings  
b. Transportation in other countries  
   ▪ Population density  
   ▪ Available resources  
   ▪ Government policies  
c. California’s High Speed Rail  
d. Developing a public service campaign that encourages the use of public transportation or a move to more efficient means of transportation  
   ▪ Measuring the current levels of use – gathering data  
   ▪ Developing a theme and strategy  
     i. Brainstorming a name for the promotion  
     ii. Designing a logo to convey the group’s purpose  
   ▪ Identifying the appropriate media outlets  
     i. How to write a press release  
     ii. Staging events that draw media attention  
   ▪ Social networks, Twitter, and other online tools for social change  
   ▪ Measuring changes in behavior

F. Living La Vita Loco—Housing Trends and Urban Growth

1. The geography of cities and the suburbs  
2. Understanding demographic data  
   a. Government data about citizens  
   b. Marketing data about consumers  
   c. Using charts and graphs to convey a picture of the modern consumer  

3. Zoning and restrictive covenants that affect building patterns  

4. Housing – the real cost of a roof over your head  
   a. Location-the cost of commuting  
   b. Size matters  
     ▪ Square footage costs-rent/investment costs  
     ▪ Additional energy costs  
   c. Energy efficiency  
     ▪ Heating and cooling  
     ▪ Lighting  
     ▪ Insulation  
     ▪ Alternative Energy
d. Retrofitting your house to be energy efficient  
e. Role plays that demonstrate product knowledge and sales skills  
   • Location, Location, Location – properties that save time and transportation costs  
   • An energy efficient home  
   • Energy-saving light bulbs  
   • Installing a photovoltaic system on a home  
f. Using customer relationship management tools to close a sale  

G. Jobs that promote conservation  
1. Customer Service Positions in the Utility Industry  
2. Management, Sales and Marketing Position in the Construction and Home Improvement Industry  
3. Energy efficiency consultants  
4. Architects and Interior designers  
5. Urban planners, conservationists, and environmental engineers  
6. Electric and hybrid vehicle sales people and mechanics  
7. Public transportation management and workers  
8. Entrepreneurs that start “Green” businesses  
9. Next steps to find employment that is “Green”  
   a. Resume  
   b. Internships  
   c. Work Experience  
   d. Additional school or training  

IV. Key Assignments  
A. I am a critical thinker  
   Students will analyze their personal values and beliefs and how those values might influence the way they interpret information about economic and environmental issues shared by the world population that shares the trait with them  
B. I am what I eat  
   Students will maintain a food diary for 3 days, create a collage of the wrappers and containers that held the food, and then identify the point of origin for the foods they consumed. Students will plot the sources of their food on a world map and calculate the amount of oil used and the carbon footprint created by their food choices.  
C. Do you _____?  
   Students will develop and conduct a survey that determines the attitudes and opinions of their peers or some other group about a specific food.  
D. Ticket to Ride Campaign  
   Students will research the local transportation network—the history that led to its current design, the government agencies that manage the current network, and proposals to expand or change the current system, and the environmental and economic impact of the current transportation system, and collect data on current transportation needs. Based on that information, students will develop a viable strategy that would allow local commuters to immediately reduce their carbon footprint and then design a month-long public relations campaign that encourages a specific group to change their mode of transportation to a more energy-efficient mode. Students will then collect data to measure the efficacy of their Public Relations campaign  
E. Financing an Energy Retrofit
Students will design an energy efficient retrofit for a home or small business, calculate the initial costs, return on investment, and the net cost of financing (minus energy savings, plus interest costs) the retrofit. Students will create a promotional brochure that explains the benefit to the home or business owner and will make a sales presentation using persuasive speaking skills to urge the customer to make the changes.

F. Career Research Paper
Using results from an interest and aptitude test, and data from the Bureau of Labor Statistics, students will select a high wage, high demand job/career related to energy efficiency or conservation to research. They will determine the projected wages, demand for employees, and essential skills and qualifications for that position and identify what post-secondary training/education they would need to be qualified for the job.

G. Resume and job application

V. Instructional Methods and/or Strategies
A. Conventional classroom lecture and teaching techniques.
B. Instruction videos
C. Computer monitoring and instruction software
D. Classroom textbooks with reading and review sheet assignments
E. Demonstrations
F. Guest speakers
G. Design projects
H. Job shadowing
I. Field trips

VI. Assessment Methods and/or Tools
A. Tests and quizzes
B. Research projects
C. Marketing projects
D. Oral presentations
E. Survey result write-ups

VII. Supplemental Instructional Materials

Morgan, Erinn, Picture Yourself Going Green, Cengage Learning, 2009

Underwood, Lynn, The Green Home, Cengage Learning, 2010