



COURSE OUTLINE

Outline Status: **NEW Course (Existing in District) (ECD 9917); 2009-2010**

Section I: BASIC COURSE INFORMATION

1. **COLLEGE: L.A. SOUTHWEST COLLEGE**
2. **SUBJECT: ENVIRONMENTAL SCIENCE**
3. **COURSE NUMBER: 001**
4. **COURSE TITLE: THE HUMAN ENVIRONMENT: PHYSICAL PROCESSES**
5. **UNITS: 3**
6. **CATALOG COURSE DESCRIPTION:**

This course introduces students to the physical processes that govern our life support systems and the social, political and economic factors that impact them. The basic science required to understand how our environmental systems work is presented. Topics discussed include the atmosphere, soils and agriculture, water resources and water pollution, sources of pollution and management of wastes, energy supply and usage, and alternative energy sources. Impacts of man's activities on environmental systems are presented and discussed. Finally, potential solutions to reduce or eliminate these impacts are described.

7. **CLASS SCHEDULE COURSE DESCRIPTION:**

A comprehensive study of how our environmental life support systems work, how we impact them, the social, economic and political factors that are the ultimate cause of these problems and possible solutions.

8. **INITIAL COLLEGE APPROVAL DATE, CURRICULUM COMMITTEE: 11/17/09**

9. **ACADEMIC SENATE APPROVAL DATE: 12/8/09**

New course; no prerequisites

10. **CLASS HOURS:**

	Standard Hrs Per Week (based On 18 weeks)	Total Hs per Term (hrs per week x 18)	Units
Lecture:	3	54	3
Lab/Activity (w / homework):	0	0	0
Lab/Activity (w /o homework):	0	0	0
Totals:	Lecture: 3	Lecture: 54	Lecture: 3
	Lab: 0	Lab: 0	Lab: 0
	Total: 3	Total: 54	Total: 3
<i>Totals In Protocol:</i>	Lecture: 3	Lecture: 54	
	Lab: 0	Lab: 0	
	Total: 3	Total: 54	Total: 3

11. PREREQUISITES, COREQUISITES, ADVISORIES ON RECOMMENDED PREPARATION, and LIMITATION ON ENROLLMENT:

Note: The LACCD's *Policy on Prerequisites, Corequisites and Advisories* requires that the curriculum committee take a separate action verifying that a course's prerequisite, corequisite or advisory is an 'appropriate and rational measure of a student's readiness to enter the course or program' and that the prerequisite, corequisite or advisory meets the level of scrutiny delineated in the policy.

PREREQUISITES: No

	Subject	Number	Course Title	Units	Validation Approval Date

COREQUISITES: No

	Subject	Number	Course Title	Units	Validation Approval Date

ADVISORIES: No

	Subject	Number	Course Title	Units	Validation Approval Date

12. OTHER LIMITATIONS ON ENROLLMENT: (See Title 5, Section 58106 and Board Rule 8603 for policy on allowable limitations. Other appropriate statutory or regulatory requirements may also apply):

None

Section II: COURSE CONTENT AND OBJECTIVES

1. COURSE CONTENT AND OBJECTIVES:

COURSE CONTENT AND SCOPE - Lecture: Outline the topics included in the lecture portion of the course (<i>Outline reflects course description, all topics covered in class.</i>)	Hours per topic	COURSE OBJECTIVES - Lecture: Upon successful completion of this course, the student will be able to..(<i>Use action verbs - see Bloom's Taxonomy for 'action verbs requiring cognitive outcomes.'</i>)
INTRODUCTION A) Environmental problems, their causes (social, political, and economic) and sustainability B) Environmental Economics C) Ecosystems D) The Need for an Integrated approach to solving environmental problems	6	1. Examine the physical processes and basic science that govern life support systems. 2. Analyze the social, political, and economic causes of environmental problems.
BASIC SCIENCE, MATTER AND ENERGY A) Matter and how physical and chemical changes affect it B) Energy and how physical and chemical changes affect it C) Laws of thermodynamics	6	
THE ATMOSPHERE A) The Composition of the Atmosphere 1) Photosynthesis...the world oxygen supply a) Contribution and Impact of Marine Plankton and Forests. B) Structure of the atmosphere 1) The "Greenhouse Effect" a) Mechanism of the greenhouse effect b) Historical Trends in carbon dioxide levels c) Climate Models d) Consequences of a Changing world climate C) Air Pollution, Climate Change and Ozone Depletion	6	3. Identify the structure of the atmosphere and appraise the impact of human activities on it.
SOILS AND AGRICULTURE A) Components of Soil B) Impact of Agriculture on Soil Resources 1) Soil Erosion 2) Soil Contamination a) Fertilizers b) Pesticide Use and Integrated Pest Management	6	4. Identify soil composition and assess how agricultural activities impact soil.
WATER RESOURCES AND WATER POLLUTION A) Surface Water Resources B) Patterns of Usage 1) Urban Water Cycle C) The Hydrologic Cycle D) Flooding and Flood Control E) Ground Water Resources 1) Source of Groundwater 2) Groundwater Depletion 3) Groundwater Pollution and Reclamation	9	5. Identify sources of our water supply and relate how use of water impacts the environment and human activities.

<p>WASTE DISPOSAL: PRIMARY CAUSE OF POLLUTION</p> <p>A) What is a Pollutant? B) Gaseous Wastes (Air Pollution) 1) Primary and Secondary Air Pollutants 2) Acid Precipitation 3) Indoor Air Pollution C) Liquid Wastes 1) Sources 2) Proper Treatment of Hazardous Liquid Waste 3) Sewage Treatment D) Solid Wastes 1) Composition 2) Landfills 3) Recycling and Resource Reclamation</p>	<p>6</p>	<p>6. Describe how wastes and pollution are generated and the impact of waste disposal on human health and the environment.</p>
<p>ENERGY SUPPLIES AND PATTERNS OF ENERGY USE</p> <p>A) Historical Patterns of Energy Use B) Energy Sources 1) Centralized vs. Decentralized Energy Generation C) Energy Use Sectors and Targets for Improvement (Energy Conservation) 1) Industrial and Transportation Sectors 2) Residential and Commercial Sectors</p>	<p>6</p>	<p>7. Identify current sources and usage of energy, their impact of current ways of producing energy, and describe alternate sources of energy.</p>
<p>ALTERNATIVE ENERGY SOURCES</p> <p>A) Alternative Fuels 1) Coal Liquefaction and Gasification 2) Alcohol and Gasohol 3) Biofuels 4) Hydrogen B) Non-Fuel Alternatives 1) Wind 2) Solar - Strengths and Weaknesses a) Photovoltaics C) Nuclear Energy and Waste Issues 1) Nuclear Terrorism and Proliferation of Nuclear Weapons Introduction</p>	<p>6</p>	
<p>POTENTIAL SOLUTIONS TO ENVIRONMENTAL PROBLEMS</p> <p>A) Review of major environmental problems B) Potential solutions</p>	<p>3</p>	<p>8. Develop the scientific background to formulate effective decisions regarding environmental problems.</p> <p>9. Identify environmental problems and propose potential solutions.</p>
<p style="text-align: right;">Total:</p>	<p>54</p>	
<p style="text-align: right;">Total Hrs In Protocol:</p>	<p>54</p>	

1. (cont'd) LAB:

COURSE CONTENT AND SCOPE - Lab: Outline the topics included in the laboratory portion of the course (<i>Outline reflects course description, all topics covered in class.</i>)	Hours per topic	COURSE OBJECTIVES - Lab: Upon successful completion of this course, the student will be able to..(<i>Use action verbs - see Bloom's Taxonomy for 'action verbs requiring cognitive outcomes.'</i>)
Total:	0	
Total Hrs In Protocol:	0	

1. (cont'd) SLO:

The student will... (outcome)	As measured by the following method.. (assessment strategy)	And, if applicable, scored by the following learning rubric. (provide attachment)	Results are examined to determine if the outcome is achieved. Include planned or actual assessment date. (results & evaluation)	Recommendations to improve teaching and learning. (modifications)
#1 Describe the atmosphere, sources of water, and energy, and wastes generated by human activities and determine how these activities impact the environment.	Embedded assessment in lecture final. SLO REVIEW, 11/10/09, GY		Spring 2010	

2. REQUIRED TEXTS:

Provide a representative list of textbooks and other required reading; include author, title and date of publication:

Miller Jr., G. Tyler and Spoolman, Scott, <u>Environmental Science</u> , 13th ed., Cengage Learning Academic, 2010 Miller Jr., G Tyler and Spoolman, Scott, <u>Living in the Environment</u> , 2009
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3. READING ASSIGNMENTS:

Provide a representative list of textbooks and other required reading; include author, title and date of publication:

News media, Internet searches of technical journal and electronic databases.
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4. WRITING ASSIGNMENTS:

Writing assignments, as required by Title 5, in this course may include, but are not limited to the following:

Exams incorporate essay questions and a term paper on a selected environmental issue is required.

5. REPRESENTATIVE OUTSIDE ASSIGNMENTS (HOMEWORK):

Out of class assignments (Homework) may include, but are not limited to the following:

Search internet, study materials presented in lecture, and possible online video observation and reporting.

6. REPRESENTATIVE ASSIGNMENTS THAT DEMONSTRATE CRITICAL THINKING:

Provide examples of assignments, as required by Title 5, that demonstrate critical thinking.

Answering questions posed in class and answering essay questions provide experience in analysis and problem solving. An example of a question is: "What are the advantages of using solar photovoltaic on the LASC campus?"

7. METHODS OF EVALUATION:

Title 5, section 55002 requires grades to be 'based on demonstrated proficiency in subject matter and the ability to demonstrate that proficiency, at least in part, by means of essays, or, in courses where the curriculum committee deems them to be appropriate, by problem solving exercises or skills demonstrations by students.' Methods of evaluation may include, but are not limited to the following (please note that evaluation should measure the outcomes detailed 'Course Objectives' at the beginning of Section II):

Mid term and comprehensive final exam that include problem solving questions and participation in class discussions.

8. METHODS OF INSTRUCTION:

Please Check All That Apply

- Lecture**
- Discussion**
- Laboratory**
- Activity**
- Field Experience**
- Independent Study**
- Other (Please Explain)**

9. SUPPLIES:

List the supplies the student must provide.

Materials required to take notes and follow the lectures (e.g. notebooks, tape recorders)

10. COMPUTER COMPETENCY:

If applicable, explain how computer competency is included in the course.

Students are encouraged to extend classroom presentations with Internet research.

11. INFORMATION COMPETENCY:

If applicable, explain how information competency is included in the course.

Students participate in class discussions and use the Internet, library and other news media to expand their understanding of the topics presented in class.

12. DIVERSITY:

If applicable, explain how diversity (e.g., cultural, gender, etc.) is included in the course.

N/A

13. SCANS COMPETENCIES:

(required for all courses with vocational TOP Codes; recommended for all courses)

SCANS (Secretary's Commission on Necessary Skills) are skills the Department of Labor identified, in consultation with business and industry leaders, which reflect the skills necessary for success in the workplace. Check the appropriate boxes to indicate the areas where students will develop the following skills (please note that all SCANS competencies do not apply to all courses):

RESOURCES

- Managing Time:** Selecting relevant goal-related activities, ranking them in order of importance, allocating time to activities, and understanding, preparing and following schedules.
- Managing Money:** Using or preparing budgets, including making cost and revenue forecasts; keeping detailed records to track budget performance, and making appropriate adjustments.
- Managing Material and Facility Resources:** Acquiring, storing, allocating, and distributing materials, supplies, parts, equipment, space or final products in order to make the best use of them.

INTERPERSONAL

- Participating as Member of a Team:** Working cooperatively with others and contributing to group's efforts with ideas, suggestions and effort.
- Teaching Others New Skills:** Helping others learn needed knowledge and skills.
- Exercising Leadership:** Communicating thoughts, feelings, and ideas to justify a position, encouraging, persuading, convincing or otherwise motivating an individual or group, including responsibly challenging existing procedures, policies or authority.
- Negotiating:** Working toward agreement that may involve exchanging specific resources or resolving divergent interests.

- Working with Cultural Diversity:** Working well with men and women and with people from a variety of ethnic, social, or educational backgrounds.

INFORMATION

- Acquiring and Evaluating Information:** Identifying a need for data, obtaining the data from existing sources or creating them, and evaluating their relevance and accuracy.
- Organizing and Maintaining Information:** Organizing, processing and maintaining written or computerized records and other forms of information in a systematic fashion.
- Interpreting and Communicating Information:** Selecting and analyzing information and communicating the results of others, using oral, written, graphic, pictorial, or multimedia methods.
- Using Computers to Process Information:** Employing computers to acquire, organize, analyze and communicate information.

SYSTEMS

- Understanding Systems:** Knowing how social, organizational and technological systems work and operating effectively with them.
- Monitoring and Correcting Performance:** Distinguishing trends, predicting impacts of actions on system operations, diagnosing deviations in the functioning of a system/organization, and taking necessary steps to correct performance.
- Improving or Designs Systems:** Making suggestions to modify existing systems in order to improve the quality of products or services and developing new or alternative systems.

TECHNOLOGY

- Selecting Technology:** Judging which sets of procedures, tools or machines, including computers and their programs, will produce the desired results.
- Applying Technology to Tasks:** Understanding overall intent and proper procedures for setting up and operating machines, including computers and their reprogramming systems.
- Maintaining and Troubleshooting Equipment:** Preventing, identifying, or solving problems with equipment, including computers and other technologies.

Section III: RELATIONSHIP TO COLLEGE PROGRAMS

1. THIS COURSE WILL BE AN APPROVED REQUIREMENT FOR AN APPROVED ASSOCIATE DEGREE OR CERTIFICATE PROGRAM: NO

a. If yes, the course will be a portion of the 'approved program' listed on the State Chancellor's Inventory of Approved Programs (approved programs can be found on the State Chancellor's Office website at <https://misweb.cccco.edu/webproginv/prod/invmenu.htm>)

2. GENERAL EDUCATION REQUIREMENTS FOR THE ASSOCIATE DEGREE STATUS:

a. Area Requested: Area A: Natural Sciences

Approval Date: 11/17/09

If applicable, provide an explanation of how the course meets the General Education parameters for one of the five general education areas - Natural Sciences, Social and Behavioral Sciences, Humanities, Language and Rationality, Health and Physical Education -- contained in Board Rule 6201.14 -General Education Requirements. http://marlin.laccd.edu/district/BoardRules_AdmsRegs/boardrules.htm

This course in the natural sciences examines the physical universe, its life forms and its natural phenomena. It satisfies the General Education requirement in natural sciences because it helps the student develop an appreciation and understanding of the scientific method, and encourages an understanding of the relationships between science and other human activities.

b. Area Requested: None

Approval Date:

If applicable, provide an explanation of how the course meets the General Education parameters for one of the five general education areas - Natural Sciences, Social and Behavioral Sciences, Humanities, Language and Rationality, Health and Physical Education -- contained in Board Rule 6201.14 -General Education Requirements. http://marlin.laccd.edu/district/BoardRules_AdmsRegs/boardrules.htm

Section IV: ARTICULATION INFORMATION

(Complete in consultation with College Articulation Officer)

1. TRANSFER STATUS:

<p>a. Transferable to the University of California: NO</p> <p>b. UC Approval Date: pending request and approval</p>	<p>c. Transferable to the California State University: Yes</p> <p>d. College Approval Date: 11/17/09</p>
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2. GENERAL EDUCATION FOR TRANSFER:

<p><i>IGETC Certification</i></p> <p>a. Area Requested: 5-A: Physical Sciences</p> <p>b. Date Requested: 12/10</p> <p>c. IGETC Approval Date: pending</p> <p>If applicable, provide an explanation of how the course meets the appropriate General Education parameters, as defined in IGETC Certification Guidelines.</p> <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 10px;"></div>	<p><i>CSU Certification</i></p> <p>a. Area Requested: B1, Physical Science</p> <p>b. Date Requested: 12/10</p> <p>c. CSU Approval Date: pending</p> <p>If applicable, provide an explanation of how the course meets the appropriate General Education parameters, as defined in CSU Certification Guidelines.</p> <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 10px;"></div>
<p>a. 2nd Area Requested:</p> <p>b. Date Requested:</p> <p>c. IGETC Approval Date:</p> <p>If applicable, provide an explanation of how the course meets the appropriate General Education parameters, as defined in IGETC Certification Guidelines.</p> <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 10px;"></div>	<p>a. 2nd Area Requested:</p> <p>b. Date Requested:</p> <p>c. CSU Approval Date:</p> <p>If applicable, provide an explanation of how the course meets the appropriate General Education parameters, as defined in CSU Certification Guidelines.</p> <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 10px;"></div>

3. MAJOR REQUIREMENT FOR TRANSFER: N/A

Will this course be articulated to meet lower division major requirements?:

List college/university and the majors:

CAN NUMBER: **CAN SEQUENCE #: N/A**

CAN Approval -

Date requested: Date approved:

Section V: SUPPLEMENTAL COURSE INFORMATION

1. **DEPT/DIVISION NAME:** General
2. **DEPT/DIVISION CODE:** 07
3. **SUBJECT CODE:** 411
4. **SUBJECT ABBREVIATION:** ENV SCI
5. **RECOMMENDED MINIMUM QUALIFICATION AREA:**
6. **ABBREVIATION FOR TRANSCRIPTS:** HUMAN ENV:PHYS PROCS
7. **DEGREE CREDIT:**

Indicate whether the course meet the 'standards for approval' for degree credit course set forth in Title 5, section 55002(a)(2), which requires the course to have a degree of intensity, difficulty, and vocabulary that the curriculum committee has determined to be at the college level: **Degree Applicable**

8. **GRADING METHOD:** LETTER GRADE
9. **REPETITIONS:** # of times repeated for credit: **0**

If this course is repeatable, explain how repetition of this course meets Title 5, section 55041(c)(2)(B):

10. **PRIOR TO TRANSFERABLE LEVEL:**

This course attribute applies to **English, Writing, ESL, reading and mathematics** courses ONLY. If applicable, indicate how many levels below the transferable level this course should be placed: **Not applicable**

11. **CREDIT BASIC SKILLS:**

Title 5, section 55000(j) defines basic skills as 'courses in reading, writing, computation, and English as a Second Language, which are designated as non-degree credit courses pursuant to Title 5, section 55002(b)'.: **No**

12. **CROSS REFERENCE:**

Is this course listed as equivalent in content to existing College/District courses in another discipline?: **No**

If Yes, list courses (documentation of cross-discipline agreement must be provided):

13. **COURSE SPECIFICALLY DESIGNED FOR STUDENTS W/ DISABILITIES:**

Title 5, section 56029 allows a course to be repeatable when continuing success of the students with disabilities is dependent on additional repetitions of a specific class. Is this course designated as an 'approved special class' for students with disabilities?: **No**

If yes, provide an explanation of how this course meets the requirements of Title 5, section 56029:

14. COOPERATIVE EDUCATION STATUS:

Title 5, section 55252 allows for two types of Cooperative Education: 1) General Work Experience Education -- i.e., supervised employment, which is intended to assist students in acquiring desirable work habits, attitudes and career awareness, which need not be related to the students' educational goals; or 2) Occupational Work Experience Education - i.e., supervised employment, extending classroom based occupational learning at an on-the-job learning station, which is related to the students' educational or occupational goal. Is this course part of the college's approved cooperative work experience education program?: **No**

15. COURSE CLASSIFICATION: Liberal Arts and Sciences

Note: A course's Classification, TOP Code and SAM code must be aligned; e.g., Courses with an 'Occupational' Course Classification must have an 'Occupational' TOP Code and a SAM Code of A, B, C, or D; courses that do not have an 'Occupational' Course Classification cannot have an Occupational TOP Code and must have an 'E' SAM Code. Courses coded as 'basic skills' in #11 should be coded 'Adult and Secondary Basic Skills.'

16. TOP CODE - (6 digits XXXX.XX): **0301.00**

Course content should match discipline description in Taxonomy of Programs found at <http://ecd.laccd.edu/TaxonomyOfPrograms.doccurriculum.htm>

17. SAM CODE (Student Accountability Model): **E**

18. FUNDING AGENCY CODE:

19. STATE COURSE ID:

Section VI: APPROVAL STATUS

1. APPROVAL STATUS:

		Approval Date Of	Board Date	Requested Effective Semester	Approved Effective Semester
a.	<input type="checkbox"/> New Course	College:	Board:	Effective Semester:	Effective Semester:
b.	<input checked="" type="checkbox"/> Addition of Existing District Course	College: 12/8/09 (Acad. Senate)	Board:	Effective Semester: Winter 2010	Effective Semester:
c.	<input type="checkbox"/> Course Change*	College:		Effective Semester:	Effective Semester:
d.	<input type="checkbox"/> Outline Update	College:			Effective Semester:
e.	<input type="checkbox"/> New Course	College:		Effective Semester:	Effective Semester:
f.	<input type="checkbox"/> New Course	College:	Board:	Effective Semester:	Effective Semester:

* Changes to a course require the completion of a 'Course Change Request' form and approval by the college's Curriculum Committee. In some cases districtwide approval is also required; see, Administrative Regulation E-65, section 3(c) for details.

Section VII: APPROVAL INFORMATION FOR NEW OR ADDED COURSES

(complete in consultation with Department Chair and the appropriate Academic Administrator)

1. **ORIGINATOR: Callender, Alistaire**

2. **DEPARTMENT: 07**

3. **IF THIS IS A NEW COURSE, INDICATE HOW THE COLLEGE PLANS TO MEET THE EXPENSE OF THIS COURSE:**

The originator of the course is a newly hired instructor who will teach this course with existing funds and resources.

By additional funds. Describe:

By deleting courses from the college catalog and course database. List specific courses to be deleted:

By deleting sections of existing course. List courses and number of sections to be deleted:

FIRST YEAR: SECOND YEAR: THIRD YEAR:

By rotating sections of existing courses. List courses and number of sections to be rotated, as well as the semesters in which they will be offered:

4. **IMPACT**

IMPACT -- Will this course directly impact other course offerings and/or associate degree or certificate programs on campus? No (If yes, briefly explain how)

5. **METHOD OF SUPPORT**

-- Indicate how the college plans to support the proposed course:

Additional staff -- List additional staff needed:

Existing

Classroom -- List classroom type needed:

Existing

Equipment -- List new equipment needed and indicate funding source for any new equipment:

Existing

Supplies- List supplies and indicate dollar value:

Existing

Library/Learning Resources- The course initiator shall consult with the College Librarian and review the college library, book, periodical, and electronic resource collections relevant to this course. List additional titles and resources to be considered for purchase as funding permits:

CERTIFICATION AND RECOMMENDATION

- This course meets Title 5 requirements for Associate Degree applicable college credit towards an Associate Degree.
- This course meets Title 5 requirements but does not satisfy the requirements for an Associate Degree applicable course.

We certify that the information and answers above properly represent this course.

Alistaire Callender	11/17/2009
Originator	Date
Glenn Yoshida	11/17/2009
Department/Cluster Chairperson	Date
Linda Larson-Singer	11/17/2009
Articulation Officer	Date
Ramon Miramontes	11/17/2009
Librarian	Date
Ramon Miramontes	11/17/2009
Dean (if applicable)	Date
Linda Larson-Singer	11/17/2009
Curriculum Committee Chairperson	Date
Allison Moore	12/02/2009
Academic Senate President	Date
Mary Callahan	12/08/2009
Vice President, Academic Affairs	Date
Jack Daniels	12/10/2009
College President	Date