



COURSE OUTLINE

Outline Status: **New Course to the District** (ECD 9966); 2009-2010

Section I: BASIC COURSE INFORMATION

1. **COLLEGE:** L.A. SOUTHWEST COLLEGE
2. **SUBJECT:** ENVIRONMENTAL SCIENCE
3. **COURSE NUMBER:** 099A/ 023
4. **COURSE TITLE:** POLLUTION PREVENTION AND WASTE MINIMIZATION
5. **UNITS:** 3
6. **CATALOG COURSE DESCRIPTION:**

This course provides an introduction to the principles of pollution prevention and waste minimization. Students will be introduced to the federal and state of California laws, and concepts of sustainability and resources recovery. Quantities and types of wastes generated in the United States and methods of managing the wastes generated (advantages and disadvantages) will be covered, including landfill disposal, materials recovery and incineration. Federal, state and local programs to prevent, reduce and recycle wastes will be introduced and discussed. Students will apply the principles presented in class to develop a pollution prevention/waste minimization plan.

7. CLASS SCHEDULE COURSE DESCRIPTION:

This course provides an introduction to the types, quantities and sources of wastes generated in the United states, and the ways of managing these wastes. Topics include an overview of federal and state laws governing wastes generation and management; sustainability; recycling and reuse of waste materials, and methods of managing wastes. Course will include student preparation of a Pollution Prevention and Waste Minimization Plan.

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

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

New course to District; 99A and 3; no prerequisite

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:	1	Lecture:	18		
	Lab:	2	Lab:	36		
	Total:	3	Total:	54	Total:	2

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
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COREQUISITES: No

	Subject	Number	Course Title	Units	Validation Approval Date
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ADVISORIES: No

	Subject	Number	Course Title	Units	Validation Approval Date
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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..(Use action verbs - see <u>Bloom's Taxonomy</u> for 'action verbs requiring cognitive outcomes.')
1. Introduction/Regulatory Framework a. Federal laws and regulations governing management of solid and hazardous waste and recycling b. Resource Conservation and Recovery Act, Hazardous And Solid Waste Amendments c. 1984,CERCLA,and the amendments to CERCLA. d. Emergency Planning and Community Right to Know Act (EPCRA), Department of Transportation (DOT) Requirements e. California laws and regulations	9	1. Interpret the federal and state laws that govern waste management practices in the community, including recycling
2. Waste Generation a. Sources, types and quantities of waste generated in the United States. b. Particular focus in the Los Angeles area	6	2. Evaluate the sources types and quantities of waste produced in the United States.
3. Pollution Prevention Principles and Programs a. Federal programs to promote waste minimization and recycling b. State of California/Los Angeles pollution prevention and recycling programs	6	3. Discuss concepts of pollution prevention, waste minimization and resources recovery.
4. Resource Recovery Practices a. Recycling Programs 1) Development and implementation b. Materials Recovery Facilities -MRFs,	3	
5. Waste Disposal Practices and Recycling a. Landfills 1) design and operations 2) advantages and disadvantages b. Land treatment of Wastes 1) treatment of waste streams using soil and vegetation c. Incinerators 1) operations and advantages/disadvantages d. Deep Well injection of hazardous wastes	12	4. Identify methods of managing and recycling solid wastes generated by society. 5. Diagram what happens to solid waste from generation to disposal
6. Principles of Sustainability a. Definition and Introduction to the History of sustainability b. Concept of sustainable development c. Elements of sustainability	6	6. Evaluate sustainable practices that can be applied to students' lives. 7. Prepare a Pollution Prevention/Waste Minimization plan.
7. How Materials recovery facilities work a. Visit to Operating Landfill Class will visit a full scale operating landfill to observe how wastes generated by Los Angeles	6	

are managed at the facility. Design and operation will be discussed. b. Visit to Materials Recovery Facility (MRF) Class will visit a materials recovery facility to observe operations. Design and operation will be discussed.	6	
Total:		54
Total Hrs In Protocol:		54

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..(Use action verbs - see Bloom's Taxonomy for 'action verbs requiring cognitive outcomes.')
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)
Describe the sources and quantities of waste generated in California, and methods of managing the waste. SLO REVIEW, 11/10/09, GY	Embedded assessment in midterm and final exam.		Spring 2010	

2. REQUIRED TEXTS:

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

Handbook of Solid Waste Management and Waste Minimization, Cheremisinoff, Nicholas P., 2002 Environmental Engineering, Weiner, Ruth and Robin Matthews, 2003

3. READING ASSIGNMENTS:

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

Readings from Federal, State of California and City of Los Angeles publications on Pollution Prevention, Waste Minimization and Recycling Hazardous Waste Minimization by Harry M Freeman, published November 1989 ISBN-13 9780070220430
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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:

Written Reports on visits to a Landfill and a Materials Recovery Facility. Term Paper as a part of a class project.
Written reports on videos related to waste management issues around the world

5. REPRESENTATIVE OUTSIDE ASSIGNMENTS (HOMEWORK):

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

Research on class topics. Field trips to Azusa Landfill and Burrtec Materials Recovery Facility. Reports on field trips.

6. REPRESENTATIVE ASSIGNMENTS THAT DEMONSTRATE CRITICAL THINKING:

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

Examples: Students will examine the generation of wastes on the LASC campus, another LACCD college campus, or a neighborhood around the LASC campus. Students will identify methods to raise awareness of the issues related to generation of waste, and develop a plan to encourage the subject community to reduce the wastes generated and improve the quality of life in the community.

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):

Written reports on visits to operating facilities, written report on group project, classroom discussions and examinations

8. METHODS OF INSTRUCTION:

Please Check All That Apply

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

Students will gather information from observation of the environment in the surrounding communities.

9. SUPPLIES:

List the supplies the student must provide.

None

10. COMPUTER COMPETENCY:

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

Computer competency is necessary for research and accessing the Internet, online databases and periodicals. Students will use word processing and spreadsheets for preparation of reports

11. INFORMATION COMPETENCY:

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

Students will research topics and access Internet sites and online databases for data and information. Students will evaluate the data, the reliability of the source of the data, and incorporate the data into reports.

12. DIVERSITY:

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

Diversity will be included in the course as identification of the sources of wastes, location of treatment facilities and the disparate impacts of waste on different segments of the community are discussed.

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: **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_AdmRegs/boardrules.htm

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_AdmRegs/boardrules.htm

Stand-Alone Course

Section IV: ARTICULATION INFORMATION

(Complete in consultation with College Articulation Officer)

1. TRANSFER STATUS:

a. Transferable to the University of California: Request	c. Transferable to the California State University: Yes
b. UC Approval Date:	d. College Approval Date: 11/17/09

2. GENERAL EDUCATION FOR TRANSFER:

<i>IGETC Certification</i> a. Area Requested: b. Date Requested: c. IGETC Approval Date: If applicable, provide an explanation of how the course meets the appropriate General Education parameters, as defined in IGETC Certification Guidelines. <input type="text"/>	<i>CSU Certification</i> a. Area Requested: b. Date Requested: c. CSU Approval Date: If applicable, provide an explanation of how the course meets the appropriate General Education parameters, as defined in CSU Certification Guidelines. <input type="text"/>
a. 2nd Area Requested: b. Date Requested: c. IGETC Approval Date: If applicable, provide an explanation of how the course meets the appropriate General Education parameters, as defined in IGETC Certification Guidelines. <input type="text"/>	a. 2nd Area Requested: b. Date Requested: c. CSU Approval Date: If applicable, provide an explanation of how the course meets the appropriate General Education parameters, as defined in CSU Certification Guidelines. <input type="text"/>

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: **Natural Sciences, Health and Physical Ed**

2. DEPT/DIVISION CODE: **07**

3. SUBJECT CODE: **411**

4. SUBJECT ABBREVIATION: **ENV SCI**

5. RECOMMENDED MINIMUM QUALIFICATION AREA:

6. ABBREVIATION FOR TRANSCRIPTS: **POLL PREV WASTE MIN**

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?:

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 checked="" type="checkbox"/> New Course	College: 12/8/09 (Acad. Senate)	Board:	Effective Semester: Winter 2010	Effective Semester:
b.	<input type="checkbox"/> Addition of Existing District Course	College:	Board:	Effective Semester:	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:**

No additional funds: Current full-time Environmental Science instructor will teach the class as part of the regular teaching load.

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? (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:

Supplies- List supplies and indicate dollar value:

[None](#)

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:

[Federal, State of California and City of Los Angeles publications on Pollution Prevention, Waste Minimization and Recycling Hazardous Waste Minimization by Harry M Freeman, published November 1989 ISBN-13 9780070220430;](#)

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