AS in ELND : Environmental Landscaping: Landscaping, Organic Farming and Gardening

College Learning Outcomes Matrix: Rate each course from 1 to 5 with 5 being the most important.

AS in Environmental Landscaping: Landscaping, Organic Farming and Gardening	Year of SLO Review	**1. Written, Oral and Visual Communication:**	**2. Scientific and Quantitative Reasoning:**	**3. Critical Thinking /Problem Solving**	**5. Information Literacy:**	**GE**	**DEGREE**
ELND/BIOL 160 Soils: Ecology and Management	**Fall 13**	4	3	4	3	X	X
ELND 101 Introductory Principles for Sustainable Landscapes, Farms, and Gardens	**Fall 12**	3	4	5	3		X
ELND 109F Fall Principles and Practices of Organic Farming and Gardening	**Fall 12**	5	4	4	4		X
ELND 109S Spring Principles and Practices of Organic Farming and Gardening	**Sp 12**	5	4	4	4		X
ELND 115F Plant Identification, Selection, and Propagation	**Fall 12**	3	4	5	4		X
ELND 115S Plant Identification, Selection, and Propagation	**3yr w/115S**	3	4	5	4		X
ELND 120A Landscape Ecology	**Sp 13?**	4	3	4	3		X
ELND 120B Landscape Ecology	**Fall 13?**	4	3	4	3		X
ELND 140 Introductory Principles of Sustainable Landscape Design	**Sp 13?**	5	3	4	4		X
ELND 150 Integrated Pest Management in Landscapes, Farms, and Gardens	**Fall 12**	4	3	4	3		X
ELND 190 Irrigation of Landscapes, Farms, and Gardens	**Sp 13**	4	3	4	2		X
ELND 201 Special Topics in Landscape Design							X
ELND 170 Landscape, Farm, and Garden Construction							
ELND 180 Landscape, Farm, and Garden Estimating and Management							
ELND 202 Specialized Landscape Construction Projects							

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GENERAL EDUCATION SLOS: WHAT ASSIGNMENTS DO YOU GIVE IN THESE CLASSES THAT ASSESS THE FOLLOWING GE SLOS? What assessment tools do you use? Assess only SLOs that you rated 4 or 5.

AS in Environmental Landscaping: Landscaping, Organic Farming and Gardening	1. Written, Oral and Visual Communication:	2. Scientific Quantitative Reasoning:	3. Critical Thinking/ Problem Solving:	5. Information Literacy:	GE	DEGREE
ELND/BIOL 160 Soils: Ecology and Management	Soil problem		Soil problem	Soil problem		
ELND 101 Introductory Principles for Sustainable Landscapes, Farms, and Gardens		Site Presentation	Site Presentation			
ELND 109F Fall Principles and Practices of Organic Farming and Gardening	Final project	UCSC quizzes	Papers/Family report, lab work	Blog, library		
ELND 109S Spring Principles and Practices of Organic Farming and Gardening	Final project	UCSC quizzes	Papers/Family report. Lab work	Film archive		
ELND 115F Plant Identification, Selection, and Propagation		Essay Question	Site presentations	Essay Question		
ELND 115S Plant Identification, Selection, and Propagation		Essay Question	Site presentations	Essay Question		
ELND 120A Landscape Ecology	Description of landscape		Description of landscape			
ELND 120B Landscape Ecology	Description of landscape		Description of landscape			
ELND 140 Introductory Principles of Sustainable Landscape Design	Design project		Survey tests/CAD instructions/ elevation tests/ Discussion article/?			
ELND 150 Integrated Pest Management in Landscapes, Farms, and Gardens	Insect/pest problem		Insect/pest problem			
ELND 190 Irrigation of Landscapes, Farms, and Gardens	Irrigation design project		Irrigation design project			
ELND 201 Special Topics in Landscape Design						
ELND 170 Landscape, Farm, and Garden Construction						
ELND 180 Landscape, Farm, and Garden Estimating and Management						
ELND 202 Specialized Landscape Construction Projects						

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ELND 109S Principles and Practices of Organic Farming and Gardening - Spring or ELND 109F Principles and Practices of Organic Farming and Gardening - Fall
ELND 115S Spring Plant Identification, Selection and Propagation
ELND 115F Fall Plant Identification, Selection and Propagation
ELND 150 Integrated Pest Management in Landscapes, Farms and Gardens
ELND 160 Soils: Ecology and Management
ELND 190 Irrigation of Landscapes, Farms and Gardens

DEGREE SLOS After completion of this degree, students should be able to:

A. Recognize general ecological and economical principles reflected in the design, installation and maintenance of Landscapes, gardens and farms
B. Identify major components of the soil which determine the ecological sustainability of landscapes, gardens and farms.
C. Compare diverse horticultural practices inherent in ecologically sustainable landscapes, gardens and farms.
D. Apply practical skills of cultivation, fertilization, propagation, tending, harvesting and marketing by employing suitable tools appropriate to scale, methods and context (needs to be added to outline; add to Matrix later)

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THESE DEGREE OUTCOMES EQUAL WHICH COURSE OUTCOMES FOR THESE COURSES?

AS in Environmental Landscaping: Landscaping, Organic Farming and Gardening	A. Recognize general ecological and economical principles reflected in the design, installation and maintenance of Landscapes, gardens and farms	B. Identify major components of the soil which determine the ecological sustainability of landscapes, gardens and farms.	C. Compare diverse horticultural practices inherent in ecologically sustainable landscapes, gardens and farms.	D: Apply practical skills of cultivation, fertilization ,propagation, tending harvesting and marketing by employing suitable tools appropriate to scale, methods and context
ELND/BIOL 160 Soils: Ecology and Management	A, I	B, C, D, E, F, G, I, J	H, I	
ELND 101 Introductory Principles for Sustainable Landscapes, Farms, and Gardens	2, 4, 6, 7, 8, 9	5, 6, 8	1, 3, 6, 7, 9	
ELND 109F Fall Principles and Practices of Organic Farming and Gardening	1, 3, 5, 10, 11	4, 7, 8, 9	2, 3, 5, 10, 11	
ELND 109S Spring Principles and Practices of Organic Farming and Gardening	1, 3, 5, 10, 11	4, 7, 8, 9	2, 3, 5, 10, 11	
ELND 115F Plant Identification, Selection, and Propagation	a, b, c, d, f, g	g, h	b, e, f, h	
ELND 115S Plant Identification, Selection, and Propagation	1, 2, 3, 4, 5, 6, 7	7, 8	2, 5, 6, 8	
ELND 120A Landscape Ecology	1, 2, 7	3, 4, 5	6	
ELND 120B Landscape Ecology	1, 2, 7, 8	3, 4, 7, 8	5, 6, 8	
ELND 140 Introductory Principles of Sustainable Landscape Design	1, 2, 4, 5, 6	3, 4	1, 2, 4, 5	6, 7
ELND 150 Integrated Pest Management in Landscapes, Farms, and Gardens	1, 2, 3, 12, 13	8, 9, 10, 11	4, 5, 6, 7, 14, 15	
ELND 190 Irrigation of Landscapes, Farms, and Gardens	1,3,6	2, 6	4, 5,7	
ELND 201 Special Topics in Landscape Design				
ELND 170 Landscape, Farm, and Garden Construction				
ELND 180 Landscape, Farm, and Garden Estimating and Management				
ELND 202 Specialized Landscape Construction Projects				

AS in ELND : Environmental Landscaping: Landscaping, Organic Farming and Gardening

IN WHICH COURSES ARE THESE DEGREE SLOS ASSESSED? Use "I" for Intro, "P" for Practice and "M" for Mastery.

AS in Environmental Landscaping: Landscaping, Organic Farming and Gardening	A. Recognize general ecological and economical principles reflected in the design, installation and maintenance of Landscapes, gardens and farms	B. Identify major components of the soil which determine the ecological sustainability of landscapes, gardens and farms.	C. Compare diverse horticultural practices inherent in ecologically sustainable landscapes, gardens and farms.	D. (needs to be approved by Curriculum)
ELND/BIOL 160 Soils: Ecology and Management	P	P	P	
ELND 101 Introductory Principles for Sustainable Landscapes, Farms, and Gardens	I	I	I	I
ELND 109F Fall Principles and Practices of Organic Farming and Gardening	P	P	P	P
ELND 109S Spring Principles and Practices of Organic Farming and Gardening	P	P	P	P
ELND 115F Plant Identification, Selection, and Propagation	P	P	P	
ELND 115S Plant Identification, Selection, and Propagation	P	P	P	
ELND 120A Landscape Ecology	P	P	P	
ELND 120B Landscape Ecology	P	P	P	
ELND 140 Introductory Principles of Sustainable Landscape Design				
ELND 150 Integrated Pest Management in Landscapes, Farms, and Gardens	P	P	P	
ELND 190 Irrigation of Landscapes, Farms, and Gardens	P	P	P	
ELND 201 Special Topics in Landscape Design				
ELND 170 Landscape, Farm, and Garden Construction				
ELND 180 Landscape, Farm, and Garden Estimating and Management				
ELND 202 Specialized Landscape Construction Projects				

AS in ELND : Environmental Landscaping: Landscaping, Organic Farming and Gardening

DEGREE SLOS
WHAT ASSIGNMENTS DO YOU GIVE IN THESE CLASSES THAT ASSESS THE FOLLOWING DEGREE SLOS?

AS in Environmental Landscaping: Landscaping, Organic Farming and Gardening	A. Recognize general ecological and economical principles reflected in the design, installation and maintenance of Landscapes, gardens and farms	B. Identify major components of the soil which determine the ecological sustainability of landscapes, gardens and farms.	C. Compare diverse horticultural practices inherent in ecologically sustainable landscapes, gardens and farms.
ELND/BIOL 160 Soils: Ecology and Management	Soil Problem	Soil Problem	Soil Problem
ELND 101 Introductory Principles for Sustainable Landscapes, Farms, and Gardens			
ELND 109F Fall Principles and Practices of Organic Farming and Gardening	Soil quiz; soil food web quiz	Soil testing	*IPM lecture + quiz; practicum in field work
ELND 109S Spring Principles and Practices of Organic Farming and Gardening			
ELND 115F Plant Identification, Selection, and Propagation	Site design project	Site design project	
ELND 115S Plant Identification, Selection, and Propagation	Site design project	Site design project	
ELND 120A Landscape Ecology	Landscape description project	Landscape description project	Landscape description project
ELND 120B Landscape Ecology	Landscape description project	Landscape description project	Landscape description project
ELND 140 Introductory Principles of Sustainable Landscape Design			
ELND 150 Integrated Pest Management in Landscapes, Farms, and Gardens	IPM project plan	IPM project plan	IPM project plan
ELND 190 Irrigation of Landscapes, Farms, and Gardens	Irrigation design project	Irrigation design project	Irrigation design project
ELND 201 Special Topics in Landscape Design			
ELND 170 Landscape, Farm, and Garden Construction			
ELND 180 Landscape, Farm, and Garden Estimating and Management			
ELND 202 Specialized Landscape Construction Projects			

AS in ELND : Environmental Landscaping: Landscaping, Organic Farming and Gardening

ELND_101	Introductory Principles for Sustainable Landscapes, Farms and Garden	New Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: 1. Explain concepts of sustainability in the landscape, farm and garden. 2. Identify ecological relationships and principals inherent in landscape, farm and garden. 3. Compare and contrast various types of landscape, farm and garden design, installation and maintenance. 4. Identify basic elements of plant structure and classification. 5. Distinguish soil conditions and types conducive to healthy landscapes, farms and gardens. 6. Understand the bases of the hydrological cycle and its implications on landscapes, farms and gardens. 7. Describe the concepts of plant pests and methods of management including sustainable and conventional approaches. 8. Describe the importance of site analysis in the landscape, farm and garden. 9. Evaluate and compare career opportunities in the sustainable landscape, farm and garden industry.		

ELND_109	Principles & Practices in Organic Farming & Gardening	New Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: 1. Design and establish an organic garden based on ecological principles. 2. Apply organic regulations in the establishment and maintenance of a farm and garden.Translate the design and principles for the farm and market into project and management plan. 3. Participate in the processes necessary to establish and maintain a year-'round (seasonal) hand-on organic farm and gardening operation. 4. Integrate principles of soil management, fertility management, propagation techniques and practices of an organic garden. 5. Participate in the creation of a planting plan and crop rotation system. 6. Select plant material appropriate for site and intention. 7. Recognize poor soil preparation and drainage. 8. Evaluate poor soil preparation and drainage. 9. Correct and mitigate poor soil preparation and drainage. 10. Apply knowledge of optimal harvest principles. 11. Plan and prepare for optimal harvest times & seasons. 12. Use diverse sources of information (i.e. Internet, practicing farms/farmers, local gardeners).		

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ELND_109F	Fall Principles and Practices of Organic Farming & Gardening	New Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: 1. Design and establish an organic garden based on ecological principles. 2. Apply organic regulations in the establishment and maintenance of a farm and garden. 3. Translate the design and principles for the farm and market into project and management plan. 4. Participate in the processes necessary to establish and maintain a year-round (seasonal) hands-on organic farm and gardening operation with a focus on Fall. 5. Integrate principles of soil management, fertility management, propagation techniques and practices of an organic garden with a focus on Fall. 6. Participate in the creation of a planting plan and crop rotation system with focus on Fall. 7. Select plant material appropriate for site and intention with focus on Fall. 8. Recognize poor soil preparation and drainage. 9. Evaluate poor soil preparation and drainage. 10. Correct and mitigate poor soil preparation and drainage. 11. Apply knowledge of optimal harvest principles with focus on Fall. 12. Plan and prepare for optimal Fall harvest. 13. Use diverse sources of information (i.e. internet, practicing farms/farmers, local gardeners).		

ELND_109S	Spring Principles and Practices of Organic Farming & Gardening	New Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: 1. Design and establish an organic garden based on ecological principles. 2. Apply organic regulations in the establishment and maintenance of a farm and garden. 3. Translate the design and principles for the farm and market into project and management plan. 4. Participate in the processes necessary to establish and maintain a year-round (seasonal) hands-on organic farm and gardening operation with a focus on Spring. 5. Integrate principles of soil management, fertility management, propagation techniques and practices of an organic garden with a focus on Spring. 6. Participate in the creation of a planting plan and crop rotation system with focus on Spring. 7. Select plant material appropriate for site and intention with focus on Spring. 8. Recognize poor soil preparation and drainage. 9. Evaluate poor soil preparation and drainage. 10. Correct and mitigate poor soil preparation and drainage. 11. Apply knowledge of optimal harvest principles with focus on Spring. 12. Plan and prepare for optimal Spring harvest. 13. Use diverse sources of information (i.e. internet, practicing farms/farmers, local gardeners).		

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ELND_115F	Plant Identification, Selection and Propagation	New Course
Expected Outcomes for Student:		
At the end of the course, students will be able to: a. Recognize a wide variety of appropriate seasonal plant material for Bay Area gardens b. Compare various plants in terms of landscape use c. Apply taxonomic concepts to learning new plants and build a useful framework for those plants-Assess and evaluate botanical terms in descriptions d. Design and identify a digital portfolio of plants to use for clients-Propagate plants from cuttings and from seed. e. Identify appropriate plants for various micro-climates in the San Francisco Bay Area f. Compare and Contrast plant selection and usage in various gardens in the Bay Area g. Apply knowledge of plant selection to model garden plan h. Recognize plants applicable to various climates		

ELND_115S	Plant Identification, Selection and Propagation	New Course
Expected Outcomes for Student:		
At the end of the course, students will be able to: 1. Recognize a wide variety of appropriate seasonal plant material for Bay Area gardens. 2. Compare various plants in terms of landscape use. 3. Apply taxonomic concepts to learning new plants and build a useful framework for those plants-Assess and evaluate botanical terms in descriptions. 4. Design and identify a digital portfolio of plants to use for clients-Propagate plants from cuttings and from seed. 5. Identify appropriate plants for various micro-climates in the San Francisco Bay Area. 6. Compare and Contrast plant selection and usage in various gardens in the Bay Area. 7. Apply knowledge of plant selection to model garden plans. 8. Recognize plants applicable to various climates.		

ELND_120A	Landscape Ecology	Revise Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: 1. Define the biological meaning of the ecology concept. 2. Describe an ecosystem, its components and function. 3. Recognize ecosystem structures and functions as they apply to gardens and landscapes. 4. Explain factors that regulate plant communities. 5. Describe how physical and biological soil processes affect plant ecosystems. 6. Evaluate ecological information and apply it to garden and landscape design and maintenance. 7. Perform diverse roles in careers that address activities related to plants. 8. Employ library and Internet resources to gather information on plant ecology.		

ELND_120B	Landscape Ecology	New Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: 1. Depict the relationships between water, soil, energy balance and plants. 2. Make diagrams that indicate the soil - plant - atmosphere continuum. 3. Illustrate relationship between soil biological and physical properties and plant community dynamics. 4. Recognize the connection between soil biological and physical relationships and garden and landscape health. 5. Describe the predation, parasitism and competition processes. 6. Explain the effects of predation, parasitism, competition and symbiosis on plant communities. 7. Evaluate ecological information and apply it to garden and landscape design and maintenance. 8. Perform diverse roles in careers such as landscape design and maintenance, ecological restoration, wildlife ecologist, park manager and forestry.		

ELND_140	Introductory Principles of Sustainable Landscape Design	New Course
Expected Outcomes for Student:		
Upon Completion of course, students will be able to: 1. Introduce landscape and garden design theories and processes. 2. Analyze trends in landscape design. 3. Perform basic site analysis. 4. Assess the effect of landscape designs on natural resource use. 5. Explain the relationship between plant communities and plant material choices. 6. Integrate desired design outcomes with site characteristics and project budget. 7. Convey design ideas through illustrations. 8. Examine various roles and relationships in the design build process.		

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ELND_150	Integrated Pest Management in Landscapes, Farms and Gardens	New Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: 1.Understand the ecological basis of IPM 2.Explain the meaning of thresholds in IPM. 3.Describe the biological and non-biological factors important for IPM. 4.Explain the steps necessary to establish an IPM plan for a garden, landscape or farm. 5. Implement a monitoring plan for an IPM process. 6. Perform data analysis for IPM. 7. Distinguish between IPM, organic, and pesticide approaches in pest management. 8.Identify common arthropods, phytophagous, predators and parasitoids, found in gardens, landscapes and farms. 9.Explain various strategies for sound arthropod management in landscapes. 10.Explain the process to identify common diseases found in gardens and landscapes. 11.Recognize symptoms of common plant diseases. 12.Describe and explain the process by which microbes cause plant disease. 13. Describe the situations in which plants could be considered weeds. 14.Contrast strategies and tools used to manage unwanted vegetation including biological, cultural and chemical methods. 15.Utilize a wide range of sources of information, such as Web-based resources, printed books to gather information on Integrated Pest Management.		

ELND_160	Soil: Ecology and Management	New Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: A. Describe the effect of soil use on human evolution. B. Recognize various physical and biological soil constituents. C. Describe how soils form and evolve. D. Describe interactions between soil properties and water and nutrient cycles. E. Discuss the behaviour of plant nutrients in the soil. F. Analyze the effect of soil manipulations on soil properties and plant growth. G. Interpret the results of a soil analysis. H. Discuss the properties of various fertilizers. I. Propose sustainable soil management. J. Conduct research to find information about soil properties.		

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ELND_170	Landscape, Farm and Garden Construction	New Course
Expected Outcomes for Student:		
1. Interpret and understand architectural drawings and specifications. 2. Understand the role of the landscape contractor in relationship to the architect and property owner. 3. Explain the use of various tools used in the construction of landscapes. 4. Know the safety rules of the use of these tools. 5. Discuss the process to grade and drain a construction site. 6. Understand and select various materials in the construction of landscapes. 7. Have working knowledge of construction skills. 8. Know certain legal responsibilities of a landscape contractor.		

ELND_180	Landscape, Farm and Garden Estimating and Management	New Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: 1. Operate a successful Landscape Contractor's office (business). 2. Identify the different agencies that have publications for new jobs and understand how to select prospective jobs for bid construction. 3. Propose price quotations on materials and labor in order to initiate a competitive bid proposal. 4. Design bid proposals with contract documents, performance bonds, insurance and other correspondence. 5. Estimate overhead cost and profit necessary to submit a bid proposal that is acceptable to both the client and the contracting company.		

ELND_190	Irrigation of Landscapes, Farms & Gardens	New Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: 1. Describe the role of water in plants, farms, gardens and landscapes. 2. Explain the interactions between physical, chemical and biological properties of soil and water availability for plants. 3. Describe and explain the hydraulic principles fundamental for irrigation design. 4. Understand and describe varous ecologically-sound approaches to irrigate plants. 5. Assess advantages and disadvantages of various irrigation strategies, techniques and tools. 6. Design irrigation systems for farms, gardens and landscapes. 7. Employ library and Internet resources to gather information on plant irrigation.		

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ELND_202	Specialized Landscape Construction Projects	New Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: A. Define the process to follow in landscape construction projects. B. Recognize legal and business issues in landscape construction projects. C. Describe current materials used in garden and landscape projects. D. Locate sources for materials for landscape and garden construction projects. E. Discuss the various traits of materials used for garden and lanscape projects. F. Interpret drawing of garden and landscape construction projects. G. Calculate the amount of materials used for landscape projects. H. Diagram and plan garden and landscape construction projects. I. Propose garden and landscape construction projects. J. Build a special garden or landscape feature from drawings.		