



COVER SHEET FOR ALL CURRICULUM PROPOSALS

Check all Campuses making this proposal.	ALL Proposals	New Programs/Courses		
	DC/PC Signature	CEO Signature <i>(CEO signature needed for all new programs and any new courses that have new facility/resource costs associated with the course)</i>	New Program Approval Supplement B <i>(“Budget” included for each campus)</i>	New Program Approval Section 6 <i>(“Cost Effectiveness and Resources” included for each campus)</i>
ACC				
CCC				
GWCC	Karin Jakubowski			
HCC				
MCC	Ann Hadley			
MxCC				
NVCC				
NWCC				
NCC				
QVCC				
TRCC	Diba Khan-Bureau			
TxCC				

Type of Proposal.

	NEW Program (<i>degree</i>)
	NEW Certificate
	NEW Course
	MODIFICATION of an Aligned Program (<i>degree</i>)
	MODIFICATION of an Aligned Certificate
X	MODIFICATION of an Aligned Course
	DISCONTINUATION of a Program (<i>degree</i>)
	DISCONTINUATION of a Certificate
	DISCONTINUATION of a Course
	OTHER (<i>please describe</i>):



Modification of an Existing Aligned Course

This template should be used by the faculty discipline and program workgroups to modify an official record of a course for inclusion in the CT State Community College catalog. All original information as approved should be included, with revisions highlighted within the document and summarized in the “Summary of Changes.” Please use the form below, or the original approved template with revisions highlights can be copied here, with a summary of changes and effective date included and all changes highlighted within the document.

Directions: *Please provide the date, name of originator, title, and campus below.*

Date: April 7, 2024 _____

Name of Originator: Wesley L. Winterbottom _____

Title of Originator: Professor of Science _____

Primary Campus of Originator: Gateway _____

COURSE INFORMATION (Aligned)

COURSE INFORMATION (Modified)

COURSE TITLE:	Introduction to Environmental Science	COURSE TITLE:	Introduction to Environmental Science
COURSE CODE: <small>(3-4-letter subject code and number)</small>	ENV 1010	COURSE CODE: <small>(3-4-letter subject code and number)</small>	ENV 1010
SUMMARY OF CHANGES:	N/A	SUMMARY OF CHANGES:	Reduction in the number of Student Learning Outcomes (from 39 to 13) and number of instructional units included in the Topics Outline (from 19 to 14) through combination of Student Learning Outcomes and instructional units as well as removal of Student Learning Outcomes and instructional units that are covered in other CT State Environmental Science Courses.

EFFECT DATE OF CHANGES:	N/A	EFFECT DATE OF CHANGES:	Start of Fall 2024 Semester
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CREDIT HOURS:	3	CREDIT HOURS:	3
CONTACT HOURS:	3	CONTACT HOURS:	3
PREREQUISITES: Student must have earned an acceptable grade in all prerequisites before enrolling	Eligibility for ENG 1010 with workshop	PREREQUISITES: Student must have earned an acceptable grade in all prerequisites before enrolling	Eligibility for ENG 1010 with workshop
COREQUISITES: Student must be enrolled in this course during the same term.		COREQUISITES: Student must be enrolled in this course during the same term.	
COURSE DESCRIPTORS: For example: General Education course, Clinical, Lab, Studio, Distance Learning, Seminar, Practicum. Use designated codes: (once developed)		COURSE DESCRIPTORS: For example: General Education course, Clinical, Lab, Studio, Distance Learning, Seminar, Practicum. Use designated codes: (once developed)	This course meet the General Education requirement for Scientific Knowledge.

<p>CATALOG COURSE DESCRIPTION:</p>	<p>This 3-credit non-lab introductory environmental science course is suitable for science and non-science majors. Students will survey natural systems, humans' impacts on natural systems, and potential solutions to current and future environmental issues on global, regional, and local scales. Embedded in the course are explorations of interdisciplinary topics including, but not limited to, process of science; environmental ethics, attitudes, and laws; resource consumption; climate change; biodiversity loss; forests and soils; food systems, agriculture, and fisheries; land use planning; pollution and toxicology; mining and energy; water and waste management; sustainable development; ecological economics; and environmental justice. Active learning is an essential component of this course. Required for Environmental Biology, Environmental Engineering Technology, Environmental Science: Sustainability, Environmental Science and Toxicology, Natural Resources and Technology Studies: Environmental Science majors.</p>	<p>CATALOG COURSE DESCRIPTION:</p>	<p>This 3-credit non-lab introductory environmental science course is suitable for science and non-science majors. Students will survey natural systems, humans' impacts on natural systems, and potential solutions to current and future environmental issues on global, regional, and local scales. Embedded in the course are explorations of interdisciplinary topics including, but not limited to, process of science; environmental ethics, attitudes, and laws; resource consumption; climate change; biodiversity loss; forests and soils; food systems, agriculture, and fisheries; land use planning; pollution and toxicology; mining and energy; water and waste management; sustainable development; ecological economics; and environmental justice. Active learning is an essential component of this course.</p>
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<p>STUDENT LEARNING OUTCOMES:</p>	<p>Upon success completion of this course the student will:</p> <p>Science and the Environment</p> <ol style="list-style-type: none"> 1. Define the term environment. 2. Summarize the four pillars of sustainability. 3. Apply the process of science to an environmental topic. <p>Ethics, History, and Law</p> <ol style="list-style-type: none"> 4. Apply the United Nations Environmental Program (UNEP) Sustainability Goals to current environmental concerns. 5. Explain the environmental regulations legislative process and technological advances that lead to amendments. 6. Compare and contrast different environmental ethics and describe how religious and cultural traditions, worldviews, and core values influence perceptions of nature and humans' role in it. <p>The Physical Environment</p> <ol style="list-style-type: none"> 7. Diagram and balance the major biogeochemical cycles, including the hydrologic cycle, over time in the hydrosphere, lithosphere, atmosphere, and biosphere. <p>The Living Environment</p> <ol style="list-style-type: none"> 8. Describe how the processes of natural selection, evolution, and environmental change shape species. 9. Explain population characteristics using correct terminology and compare density-dependent and density independent population processes. 10. Diagram and categorize the relationships between organisms of various trophic levels within a community and relate them to energy flow in an ecosystem. 11. Identify major aquatic and terrestrial biomes, including their distributions, and 	<p>STUDENT LEARNING OUTCOMES:</p>	<p>Upon success completion of this course the student will:</p> <ol style="list-style-type: none"> 1. Demonstrate the ability to utilize the Scientific Method by completing several applications. 2. Provide examples of ecosystem management including the benefits of biodiversity and reasons for biodiversity loss in the modern world. 3. Describe the hydrologic water cycle and its relation to fresh and marine waters, groundwater, and wetlands. 4. Outline sources of air pollution and point and non-point source water pollution, their impacts on the environment and human health, and programs and technologies used to reduce or eliminate them. 5. Describe present and future sources of non-renewable and renewable energy including their costs and benefits. 6. Validate problems and best management tools associated with disposal of various kinds of solid and hazardous waste. 7. Appraise the relationships between environmental problems and governmental laws, regulations, policies and economics. 8. Break down the possible complex causes and impacts of climate change and adaptations and mitigations associated with addressing climate change. 9. Describe sustainable development and resource management including land use planning tools. 10. Provide examples of soil and agricultural resource management. 11. Identify present and future demands on natural resources as influenced by population growth, changes in worldwide per-capita income and modern technologies.
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describe how humans are disrupting these ecosystems.

Human Populations and Resource Consumption

12. Discuss the environmental and social impacts of human historical and current population growth.

13. Identify present and future demands on natural resources as influenced by population growth, rising global wealth, and new technologies.

Climate Change

14. Identify human contributions to global climate change, effects climate change has on physical and biological systems, and possible adaptation and mitigation efforts.

Biodiversity Loss, Preservation, and Restoration

15. Summarize biodiversity benefits for humans and reasons for biodiversity loss in the modern world.

16. Evaluate strategies, technologies, and methods for sustainable management of environmental systems and for the remediation or restoration of degraded environments (e.g., tropical rain forests).

Land Use Planning

17. Identify land use practices, problems, and policy, including their effects on the porosity, permeability, and erosivity of the soil.

18. Recognize the origins, current problems, and potential solutions of protected lands and waters in the US and other countries.

Environmental Health and Toxicity

19. Provide examples of emergent human and zoonotic diseases.

20. Distinguish between toxic and hazardous chemicals, including pesticides,

12. Provide examples of how the actions of individuals and communities can help to manage and solve environmental problems.

13. Compare and contrast different environmental ethical perspectives and describe how religion and cultural values and perceptions influence human behavior towards the environment.

and chronic and acute exposures and responses.

Food Systems and Agriculture
21. Describe the relationship between natural disasters and socioeconomic forces in triggering food shortages.
22. Analyze the pros and cons of various food sources, identify the life cycle of major food crops in modern society, and evaluate sustainable food movements.
23. Recommend a sustainable agricultural resource management plan in a hypothetical scenario.

Resource Extraction
24. Describe current methods of resource extraction, their environmental costs, and possible alternatives. **Conventional Energy**
25. Identify present sources of energy for humans and the environmental problems associated with each.
26. Explain how the potential energy available from nuclear and fossil fuel sources is converted to electrical energy.

Sustainable Energy and Energy Conservation
27. Identify opportunities in energy conservation and renewable energy sources, including costs/benefits.

Air Pollution
28. Describe the major categories and sources of air pollution, how air quality around the world has improved or degraded in recent years, and what society might do about problem areas.
29. Evaluate the quality of scientific information on atmospheric pollutants based on EPA standard methods.

Water Pollution, Use, and Management

30. Identify the consequences of water shortages around the world and what future projections for water shortages.

31. Define water pollution, including sources and effects, judge impacts of water pollution management and legislation, and differentiate between best available/best practical technology and total maximum daily pollution loads.

Solid and Hazardous Waste Management

32. Identify the major components of the waste stream, including toxic and hazardous wastes, and describe how wastes have been, and are being, disposed of in North America and around the world.

33. Identify strategies various societies can use to reduce solid and hazardous waste.

Sustainable Development

34. Describe sustainable development, current environmental issues in cities, and push-pull factors in urbanism. Ecological

Economics

35. Define ecological economics and identify its basic tenants.

36. Explain the relationship between economic growth and environmental degradation, as well as the limits of green consumerism and the practice of “greenwashing”.

Environmental Justice and Sustainable Communities

37. Discuss the importance of wicked problems, resilience, and adaptive management in environmental planning.

38. Evaluate how green politics, advocacy, and environmental citizenship can help the planet and all life on Earth in the future.

39. Reflect critically about the roles and identities as citizens, consumers and environmental actors in a complex, interconnected world.

<p>TOPICS OUTLINE:</p>	<p>Not necessarily in this order:</p> <ol style="list-style-type: none"> 1. Science and the Environment 2. Ethics, History, and Law 3. The Physical Environment: Atmosphere, Hydrosphere, and Lithosphere 4. The Living Environment: Populations, Communities, and Ecosystems 5. Human Populations and Resource Consumption 6. Climate Change 7. Biodiversity Loss, Preservation, and Restoration 8. Environmental Health and Toxicity 9. Food Systems and Agriculture 10. Land Use Planning 11. Resource Extraction 12. Conventional Energy 13. Sustainable Energy and Energy Conservation 14. Air Pollution 15. Water Pollution and Management 16. Solid and Hazardous Waste Management and Reduction 17. Sustainable Development 	<p>TOPICS OUTLINE:</p>	<p>Not necessarily in this order:</p> <ol style="list-style-type: none"> 1. The Scientific Method 2. Ecosystems and biodiversity 3. The Hydrologic Cycle including surface and groundwaters, fresh and marine waters 4. Air pollution 5. Point and non-point source water pollution 6. Renewable and non-renewable energy sources 7. Hazardous and solid waste management 8. Government laws, regulations, and policies 9. Environmental economics 10. Climate change 11. Sustainable development and resource management 12. Soil and agricultural resource management 12. Human population impacts on the environment 13. individual actions to protect the environment 14. Environmental ethics and justice

	18. Ecological Economics 19. Environmental Justice/Sustainable Communities		
ADDITIONAL INFORMATION (OPTIONAL): Note any special instructions, recommended texts, or materials (e.g., open-source materials)	Mastery of outcomes will be evaluated through formative assessments, case studies, discussion, and active learning.	ADDITIONAL INFORMATION (OPTIONAL): Note any special instructions, recommended texts, or materials (e.g., open-source materials)	Mastery of outcomes will be evaluated through formative assessments, case studies, discussion, and active learning.

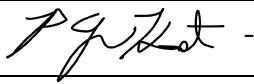
CLASSROOM REQUIREMENTS (e.g., Computer lab, Kitchen, Science Lab, Studio, Lecture)	Classrooms that readily allow for group work, active-learning, and computer-based analysis of data. Some classes may require fieldwork.	CLASSROOM REQUIREMENTS *Note: If modified classroom requirements result in increased demand for Budget, Facilities, Equipment, and/or Personnel, the campus CEO must approve this proposal. (e.g., Computer lab, Kitchen, Science Lab, Studio, Lecture)	If offered, on-ground classrooms that readily allow for group work, active-learning, and computer-based analysis of data. Some classes may require fieldwork.
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Resource needs have been discussed with Library Services and Information Technology Operations. *(Complete if applicable.)*

Name and Title	Signature of Originator	Date

- No Library Services needed.
- No Technology Services needed.

GOVERNANCE BODY	SIGNATURES	DATE
Statewide Discipline Council		2024-04-07
School Area Curriculum Council		
Curriculum Congress		
School Area Academic Dean		
CT State Provost		
*Campus CEO (if applicable)		
*CT State President (if applicable)		