EID/ENV 384 COURSE SYLLABUS

Class hours: Tu/Th 1:00 – 2:20
Office hours: W/F 12:30 – 1:30
Office: Eiben 211
Email: elizabeth.lockard@chaminade.edu

Catalog Description:
This course examines principles of sustainable design from a systemic perspective, focusing on environmental issues and how they relate to economics, social equity, and human health. Topics in the course include: cradle-to-cradle principles, biomimetic design, passive building design, renewable energy, water and waste, sustainable materials, and indoor environmental quality. Course culminates with a review of applications in the building industry.

Course Format:
Because sustainable design is a rapidly developing field, with new technologies and practices constantly emerging, the course will be reading and research intensive. Along with regular exams that cover the information presented in lectures, there will also be several in-class activities, exercises, and assignments. At the end of the semester, students will have the option to either present a design project from a previous or current studio that has been reconsidered in a sustainable design context, integrating the technologies, principles, practices, etc., they have learned about in the course; or write an in-depth (4000 word) research paper on a topic of your choice (to be approved by instructor). The student may propose other alternatives for a final project, such as building (or inventing) a sustainable technology prototype. Through these various assignments, students are expected to make an active contribution to the knowledge base of the course. An online course library will be created in order to archive information sources and innovations in the field for reference.

Course Outcomes:
Student work will be assessed by evidence of achievement in the following course outcomes. In the first half of the course—which will establish a theoretical foundation in the field—students should be able to:

- **Environmental Factors -** Identify the historical, sociopolitical, and economic factors that have contributed to the global environmental crisis we find ourselves at present.
  [CIDA 4, 10] [PO3] – EMERGING
- **Concepts & Principles -** Describe the concepts, principles, and theories of sustainability, and how they pertain to human welfare and the building industry.
  [CIDA 7] [PO3,4] - EMERGING
- **Industry Impacts -** Recognize how the fields of environmental and interior design have been influenced by, and in turn can help advance, the goals of the sustainability movement.
  [CIDA 6, 13, 14] [PO1] - DEVELOPING

In the second half of the course—which will examine practical applications within the design profession—students should be able to:

- **Design Standards -** Reference sustainability guidelines and regulations established by professional organizations in the field.
  [CIDA 16] [PO3] - DEVELOPING
- **Building Systems -** Apply sustainable principles in the areas of passive design, lighting design, thermal design, acoustic design, indoor environmental quality, renewable energy, building materials, waste management and water conservation.
  [CIDA 14, 15] [PO4] - DEVELOPING
- **Emerging Technologies -** Scan for new or emerging technologies, materials, and products, and evaluate them based on a range of properties and performance criteria.
  [CIDA 13, 14] [PO2] - EMERGING

Course Modules:

MODULE I: OVERVIEW
Week #1 Environmental Issues
Week #2 Climate Change
Week #3 Legislative Initiatives
Week #4 Exam #1; presentations

MODULE II: SYSTEMIC APPROACHES
Week #5 Sustainability Paradigms
Week #6 Passive Design
Week #7 Economic Perspectives; Exam #2

MODULE III: DESIGN STRATEGIES
Week #8 Renewable Energy
Week #9 Waste & Water Management
Week #10 Indoor Environmental Quality
Week #11 Materials & Daylighting
Week #12 Exam #3; Field trip

MODULE IV: INDUSTRY APPLICATIONS
Week #13 LEED standards
Week #14 LBC, WELL Standards
Week #15 Project presentations

Grade Evaluation:
Your final grade will be weighted as follows:

Exams (3) @ 15%	45%
Design/Research project	15%
Future Scenarios	5%
Tech Slam	5%
Fieldwork	5%
In-class exercises	25%
TOTAL	100%

Because student participation and in-class activities are an essential component of the course, regular attendance is crucial. However, should you have to miss a class, please inform the instructor in advance when possible; in any case, you will be responsible to make up any missed work *on your own*. Please make arrangements with one of your classmates to review what was missed in class; do not expect the instructor to repeat the lecture or make special accommodations due to absence.

All projects and exercises must be complete and submitted on time, unless otherwise arranged. Any unexcused late submissions will be marked down by one letter grade. Any assignments submitted over one week late will not be accepted. In the event of three unexcused absences or three unexcused tardies your course grade will be lowered by one letter grade.

Grade Calculation:
A = 90-100%
B = 80-89%
C = 70-79%
D = 65-69%
F = below 65%

Refer to CUH Student Handbook for mandatory adherence to the following policies:

- **Academic Honesty**
- **ADA Accommodation**
- **Title IX Compliance**
- **E+ID Professional Code of Conduct**

Primary Texts:
Cradle to Cradle, M. Braungarten & W. McDonough
Biomimicry: Innovation Inspired by Nature, Janine Benyus
Green Building and LEED Core Concepts, USGBC (PDF will be provided)

Reference Texts:
Laudato Si, Pope Francis
Environmentally Responsible Design, Louise Jones
Sustainable Design for Interior Environments, Susan Winchip
Biophilic Design, Stephen Kellert et.al.
Health, Sustainability, and the Built Environment, Dak Kopec
Cradle to Cradle Home Design, Anna Baker-Marshall
Net Zero Energy Design, Thomas Hootman
Biomimetics in Architecture, Petra Gruber
Biomimicry in Architecture, Michael Pawlyn
Cats' Paws and Catapults, Steven Vogel
Design for Life, Sim van der Ryn
Green Hawaii: A Guide to a Sustainable and Energy Efficient Home, Kevin Whitton
Rural Studio, Andrea Oppenheimer Dean
Natural Capitalism, Paul Hawkens
Thinking Ecologically, Marilyn Chertow

COURSE POLICIES

Attendance Policy

Students are expected to regularly attend all their registered courses. Student should notify their instructors by email when illness or other circumstances prevents them from attending class. Student must make arrangements to complete missed assignments on their own; this is not the responsibility of the instructor. Three unexcused absences or tardies may lead to a grade reduction for the course. Six unexcused absences may result in being withdrawn from the course by the instructor.

Late Work

Any assigned coursework not submitted by the prescribed deadline will be considered late, and will be subject to grade reduction at the discretion of the instructor. Should you be unable to complete an assignment on time, you should contact the instructor in advance to discuss the circumstances.

Mobile Devices

Out of consideration for your classmates, please set your cell phone to silent mode during class. Use of cell phones during class time is prohibited, except for emergencies.

Disability Access

If you need individual accommodations to meet course outcomes because of a documented disability, please speak with me to discuss your needs as soon as possible so that we can ensure your full participation in class and fair assessment of your work. If you would like to determine if you meet the criteria for accommodations, contact the Counseling Center at (808) 735-4845 for further information.

Title IX Compliance

Chaminade University of Honolulu recognizes the inherent dignity of all individuals and promotes respect for all people. Sexual misconduct, physical and/or psychological abuse will NOT be tolerated. If you or someone you know has been harassed or assaulted, please report this matter promptly to either the Dean of Students or the Counseling Center.

Refer to CUH Student Handbook for further information on the following policies:

- **Academic Honesty**
- **ADA Accommodation**
- **Title IX Compliance**
- **Academic Conduct**

Marianist Values	Native Hawaiian Values
Education for formation in faith	(Mana) E ola au i ke akua (‘Ōlelo No‘eau 364) - May I live by God
Provide an integral, quality education	(Na’auao) Lawe i ka ma‘alea a kū‘ono‘ono (‘Ōlelo No‘eau 1957) - Acquire skill and make it deep
Educate in family spirit	(‘Ohana) ‘Ike aku, ‘ike mai, kōkua aku kōkua mai; pela iho la ka nohana ‘ohana (‘Ōlelo No‘eau 1200) - Recognize others, be recognized, help others, be helped; such is a family relationship
Educate for service, justice and peace	(Aloha) Ka lama kū o ka no‘eau (‘Ōlelo No‘eau 1430) - Education is the standing torch of wisdom
Educate for adaptation and change	(Aina) ‘A‘ohe pau ka ‘ike i ka hālau ho‘okahi (‘Ōlelo No‘eau 203) - All knowledge is not taught in the same school

EID/ENV 384 - SUSTAINABILITY IN DESIGN (F'19)

		TOPIC	IN-CLASS ACTIVITIES	ASSIGNMENT	REFERENCES	MILESTONES
	MODULE I: PROBLEM OVERVIEW					
WEEK #1	Tu 8/27	Overview	Triage survey Obstacles		Building Sector PDF	
	Th 8/29	Environmental Issues	Cause & Effect exercise	Watch film (Q&A)	An Inconvenient Truth (DVD)	
WEEK #2	Tu 9/03	Climate Change	Discuss Q&A Concept map	Finish concept map		
	Th 9/05	Historical Timeline	Pair discussion (descriptive future)		Deep Adaptation PDF	Present concept maps
WEEK #3	Tu 9/10	Initiatives	Pair discussion (prescriptive future)			
	Th 9/12	Futures Scenarios	Pair discussion (scenarios)	Scenario development		
WEEK #4	Tu 9/17	Student Presentations		Exam #1		Present scenarios
	Th 9/19	Design Thinking	DT exercise			Exam #1 due
	MODULE II: NEW PARADIGMS					
WEEK #5	Tu 9/24	Cradle to Cradle	Review Exam #1 TED video (McDonough)	Tech slam	Cradle to Cradle PDF	
	Th 9/26	Biomimicry	TED video (Benyus, Pawlyn)	Ask Nature	Biomimcry PDF	
WEEK #6	Tu 10/01	Passive Design	Nature observation			Ask Nature assn due
	Th 10/03	Green Roofs	GR assembly exercise	Green Roof field work		
WEEK #7	Tu 10/08	Economic Perspectives	Mock company exercise	Exam #2	Natural Capitalism Thinking Ecologically	
	Th 10/10	Hawaiian Perspectives			Green Hawaii	Exam #2 due
	MODULE III: DESIGN STRATEGIES					
WEEK #8	Tu 10/15	Renewable Energy	SolarOrb video Review exam #2	Tech slam		
	Th 10/17	Renewable Energy	Geoexchange activity Strategy exercise	Collect materials for assembly		
WEEK #9	Tu 10/22	Waste Management	Build compost bin			
	Th 10/24	Water Conservation	Strategy exercise			
WEEK #10	Tu 10/29	Building Materials	TED video (Phillips) W/S/C materials ex			
	Th 10/31	Indoor Env Quality (light & noise)	Strategy exercise			present Tech Slam
WEEK #11	Tu 11/05	Indoor Env Quality (thermal & IAQ)	Strategy exercise			present Tech Slam
	Th 11/07	Indoor Env Quality (elec & daylight)	Solar water bottles video Strategy exercise			present Tech Slam
WEEK #12	Tu 11/12	TBD		Exam #3		
	Th 11/14	—	Field trip			Exam #3 due
	MODULE IV: INDUSTRY APPLICATIONS					
WEEK #13	Tu 11/19	LEED Standards	Review exam #3	Determine final project	LEED pdf	
	Th 11/21	LBC Standards	Identify materials Green standards exercise	Finish standards ex	LBC pdf	
WEEK #14	Tu 11/26	Sustainable Action	Aspirations & Goals			Present standards
	Th 11/28	Thanksgiving holiday	—	—	—	—
WEEK #15	Tu 12/03	Student Presentations				Present final project
	Th 12/05	Student Presentations				Present final project
WEEK #16		NO FINALS				