Syllabus and Guidelines -

Open Enrollment Spring 2013

The Sustainable Built Environment

Course code: **Carp 204**

Units: 3

Class meeting times: Fridays 9:30am-1:00pm

Classroom location: B130

Instructor: John Shurtz

Email address: johnshurtzgbm@gmail.com Text or VM: 510 863-1762

Course Description:

- Introduction to the Sustainable Built Environment will cover principles, strategies and techniques in the fields of energy efficiency, renewable energy, resource and water conservation and Indoor Air Quality.
- This class will have field trips to "green" retailers, solar thermal installations, PV lab
- This course will include handouts, reading assignments, quizzes and a final exam.

Learning Outcomes:

- Graduates from this course will come out of the class fully conversant on the trends and opportunities in green building, and able to understand the terms and concepts covered.
- Graduates will be ready to hire on, and will understand the basic steps on site and be able to respond intelligently to the Project Manager, as an apprentice in the chosen trade.
- Graduates will understand the relationships between the built environment and natural resources, water and energy use, and climate change.
- Graduates will understand the basics of creating healthy interiors.

Grading Policy and Method of Evaluation:

Attendance - (roll will be taken at every class)
Homework & Quizzes – 33**%**
Final Exam – **33%**
Class participation and Presentations – **33%**

A = 90-100% **B = 80-90%** **C = 70-80%** **D = 60-70%** **F = <60%**

Attendance : Attendance is expected at every class meeting. The instructor may grant leaves of absence for limited periods to cover childcare issues, job commitments, illness, hospitalization, or acute emergencies. Responsibility for

making up work missed because of absence rests with the student. The semester moves fast and a lot of material is covered in every class, so your attendance is crucial to your success in the class. I will not go over missed lectures with students who missed class. Meet with classmates and go over missed materials. District policy limits attendance in classes to those who are officially enrolled in the class. In other words, no friends, etc. visiting in the class or lab.
Lectures will begin promptly with roll taken first. **Late students (5 minutes) arriving after the start of a lecture will receive a tardy. Leaving class early without prior approval from instructor is considered an absence. Three unexcused tardiness = one absence. Three absences are allowed in a semester. Further absences may result in a drop in your grade.**

Drops: Students are responsible for dropping from classes

Feb. 3 Last day to drop regular session classes without receiving a "W"
April 27 Last day to receive a "W"

If you plan on not attending a class, communicate your intentions to the instructor in advance! Leave a text with your name. Leaving class early without communicating to me constitutes an absence. If you need to leave early you must let me know before the class begins. On occasion expect roll to be taken at the end of class.
Students are encouraged to ask questions and participate in class discussions, and will be called upon when raising their hands. However, *independent conversations are distractive and counterproductive.* Please make comments and questions for the entire class, not in private conversations with neighbors.

Homework & Quizzes (33%) and Final Exam (3%): Homework, Quizzes and Final Exam are based on class lectures (see above), reading assignments and Field Trips.

Class participation, Presentations & Reports (33%): Students are encouraged to share what they are learning outside of class that is related to our course. Each student will choose a topic related to sustainability, research it, and give a 5-10 minute presentation to the class. This can be done with Power Point or other media format. If not familiar with those, speak with instructor.

Lectures: All presentations and Power Points will be available to review at this link: http://www.slideshare.net/laneycollege . If a student misses a class, it is

his/her responsibility to watch the presentation online. This tool also makes the presentations available for review before a quiz or Final exam.

Text: Green From the Ground Up, By David Johnston and Scott Gilbert. (This text will be loaned to you for the semester. If damaged or lost you will be responsible for the cost of replacing it.) **Bring textbook to every class.**

Handouts: Instructor will provide supplemental reading materials ("handouts") throughout the semester. The handouts provide information pertaining to the ongoing lessons. The student is expected to provide a 3 ring binder for organizing these materials. One binder is sufficient for all classes. Include in the binder all handouts, lecture notes, homework assignments, quizzes, tests and exams. The instructor will check the binders periodically throughout the semester.

Reading Assignments: Instructor will assign reading assignments from the text book, Green from the Ground Up. Quizzes and exams will be based on both the class presentations and the reading assignments.

Breaks: This is a three hour class. There will be one break every 90 minutes, or the equivalent to be determined. Students are to stay in the class until end of class.

Cell phones & laptops: Cell phone use, laptops and texting are **NOT** permitted during class hours, unless expressly approved in advance. Phones are to be put on vibrate, if needed, and instructor approval needed to answer emergency calls. Repeated offenses will affect grade.

Food and drinks: Eating food and drinks are not permitted during class hours. Please be respectful of others and the environment and clean up after yourself.

Waste and Recycling: All students are responsible for separating and recycling their waste products- paper, plastic, bottles and cans. **Be the Change!**

NOTE: The following schedule is a guideline to the material covered in this course. . This schedule is a general outline, and content and reading assignments may change from week to week. Assignments are given at the end of class, if different.

Material Covered in CARP 204 - Sustainable Built Environment
Spring Semester
January 25th - May 10th, 2013

January 25th Sustainability and the Built Environment

- Introductions
- Review Syllabus & Course Outcomes
- Distribute Textbooks
- Current state of the global environment

Video: The Story of Stuff 20 min

Impacts of how we live and where we build

Video: "New Dream- 3rd Wave of Environmentalism" Van Jones, Green For All

Climate Change and Eco Footprint

Video - "The Most Powerful Climate Video You Will See This Week"

Eco Footprint ~ Group Activity

Reading Assignment: Chapter 1 Green Building Basics
Chapter 3 Planning and Design

February 1st Energy Conservation

Presentation: Passive Solar, Passive Cooling & Daylighting

Energy Conservation and Efficiency in Green Building:
Daylighting, skylights and solar tubes - Lighting and controls
Low tech advancements in daylighting

Reading Assignment: Chapter 2 The House As A System - Pages 23-42

February 8th The Science of Buildings:

Retrofits & Energy Efficiency:

Basic Weatherization Overview, Duct Testing and Sealing
Blower door testing, Infrared Camera

Hands-on with Blower Door & Manometer

Reading Assignment: Chapter 9 HVAC Pages 173-196
Homework: Home Performance Evaluation/Checklist

February 15th Lincoln's Birthday Holiday – NO CLASS

February 22nd Case Studies, Passive House

Show Student Presentation (Stormwater Mgt. etc.)
Student presentation topics explored in small groups
Reading Assignment: Chapter 10 Electrical Pages 197-206
: Photovoltaics – pages 262-272
*** Student presentations declared –

March 1st Introduction to Renewable Energy

Photovoltaics Installation and Design Principles
Reading Assignment: Ch 13 Solar Energy pages 251-261

March 8th Green Building Rating Systems

Codes, Rating Systems & Certifications
LEED, Green Point Rated, Passive House, Living Building Challenge, etc
Case Studies: Sonoma Mountain Village, Cavallo Point,
Lake Chalet, California Public Utilities Commission, etc.
Brower Center
Group activity exploring each other's presentation topics
Reading Assignment: Chapter 5 Framing

March 15th FIELD TRIP to LEED Platinum Building

10:30am David Brower Center
2150 Allston Way, Berkeley, CA 94704

March 22nd Solar Hot Water and Design Principles

Hot water - Heating - Geothermal
Wind Video: Waste to Gas Altamont Pass Livermore

Video: Biotech-India Turning Household Waste into Biogas
Reading Assignment: Chapter 6 Roofs and Attics

March 29th FIELD TRIP to Zero Waste Apartment House

Zero Waste Apartment and Solar Thermal System
5499 Claremont Ave, Oakland, meet in back parking lot on Martin St.
Reading Assignment: Chapter 12 - Siding & Decking pages 227-250
Chapter 15 – Interior Finishes pages 287-310

April 5th Green Materials and Specifications

Resource Conservation

- Life Cycle Assessment overview
- Tools to choose green materials

Quiz #4 Green Materials
Reading Assignment: Chapter 14 – Indoor Air Quality pages 273-286

April 12th Indoor Environmental Quality

"When energy efficiency and collides with health"
Quiz #6 IAQ
Reading Assignment: Chapters 16 Landscaping

April 19th Water Conservation

Water Conservation in Landscaping and Site Design
Presentation: Design Ecology
On Campus Activity: Watershed thinking - Storm water management
Native landscaping - Pervious paving - Rainwater harvesting
Reading Assignment: Chapter 8 Plumbing pages 155-172

April 26th Water Conservation

Water Efficient Building And Retrofits:
Presentation: Greywater, Green Jobs and Ecological Landscaping
Water Conservation Review
Quiz– Site & Water Conservation
Review Quiz
Class Presentations
Reading Assignment: Afterword pages 322-325

May 3rd **Course Review & Class Presentations**

Natural Building - From Cob to Prefab

Natural Building - adobe, strawbale, bamboo and cob

Modular Homes and panelization

Video: Haiti Earthship Disaster Relief

Reading Assignment: Review ALL Quizzes & Notes

May 10th **Final Exam**

(Hand in Textbooks)