COURSE DESCRIPTION

Analysis and evaluation of sustainable buildings is an increasingly important component of learning from what has been accomplished by improving building performance. Additionally, as we strive to make more efficient and effective environments for living and working, we must understand the successes (and failures) of our decision decisions.

Recently completed, the renovation and addition to the University of Oregon’s Allen Hall, home to the School of Journalism and Communication Allen Hall, offers a unique research and learning opportunity. This case study course will include contributions by the design team: the architect responsible for the sustainable design components of the project (Miles Woofter and TBG Architecture), and direct input from key members of the design team (client: UO Planning and Construction, MEP: Glumac and Contractor: Lease Crutcher Lewis). The focus will be placed on the student-based team research and detailed analysis and evaluation of the sustainable design systems and building performance in definitive terms; and qualitatively through interviews, transcriptions, and analysis. We plan to develop books of performance and design process – Stories from Practice.
Student teams may take on another case study of their own choosing (e.g. continuing case study research from previous terms--campus energy audits, ongoing monitoring – see the instructor)

This research oriented course will focus on three specific areas of sustainable building analysis and evaluation:

1. Fundamental review and evaluation of sustainable design principles and strategies:
   a. Renovation and addition vs. greenfield
   b. Central plant vs. stand-alone systems
   c. Hybrid HVAC systems
   d. Daylighting/Electric lighting
   e. Materials and resources

2. Post-occupancy systems performance, quantitative energy use focus:
   b. LEED Measurement and Verification review
   c. Building metering
   d. Energy performance analysis by system and building zone
   e. Daylighting systems, testing and analysis

3. Post-occupancy evaluation, qualitative survey/interview in-field analysis:
   a. Review and develop methodologies for user-based research and inquiry
   b. Develop on-line and in-person building occupant surveys
   c. Conduct in-field interviews with building occupants, design team

COURSE FORMAT
Class time each week will combine lecture, in-class and in-field research, analysis, evaluation, and discussion activity. Focus will be placed on student/team-based learning both in-class and in the field. The course work, in class and in the field will foster opportunities for discussion, group discourse, question and answer. Additionally, guest speakers with specific expertise will be invited to share their experience with sustainable design, energy systems and energy analysis and user survey and evaluations. A majority of the course time will be devoted bringing expert discussion to what the students produce. Research and analysis based exercises will be initiated in class, with the process and tools needed to complete the assignments outside of class-time. The final project will be to compile the research and analysis into a final post-occupancy evaluation report.

COURSE OBJECTIVES
- Increase understanding of sustainable design systems, opportunities and challenges, options and selections
- Develop an analytical approach to evaluating building design, systems and performance
- Review and analyze energy code compliance, building energy modeling and actual building performance
- Establish thorough Post-Occupancy Evaluation approach that includes building systems review, energy analysis and occupant evaluation

GRADING & EXPECTATIONS
This course may be taken as either graded or P/N. In order to receive a “Pass” for the course, undergraduate students must receive a minimum grade of C minus; graduates must receive a minimum grade of B minus. The overall course grade will be based upon a cumulative tabulation of the various elements described above, weighted as follows:
Students are expected to attend class and participate in class discussions. Exercises should be completed in a professional format and should demonstrate care, craft, and an understanding of course material. When completing calculations, all work must be shown and all units must be included in order to receive full credit. You must accurately cite sources in your work. Exercises are due at the beginning of class on the due date. Late work will be accepted after this point with a late penalty of 5% per day for a maximum of one week.

If you have a documented disability and require reasonable accommodations in order to succeed in this course or if you will need special assistance in the event of an emergency situation requiring building evacuation, bring documentation to the attention of the instructor during the first week of class.

This course has been identified as a directed elective that will satisfy the technical elective requirement in integrated building practices, technical skills and knowledge.

Research Compliance Services supports the Committee for the Protection of Human Subjects (CPHS), which serves as the University of Oregon's Institutional Review Board (IRB). The mission of the CPHS/IRB is to protect the rights and welfare of people participating in University of Oregon research. All interviews, surveys, conducted by UO must go through a review process, which can take about 5 weeks. Students must have clearance by CITI.