ABS 741 – Integrated Building Systems

Number & Title of Course: **Credits**
ABS 741 – Integrated Building Systems   3

Course Description:
Design of building structures together with mechanical and electrical services, life safety codes, and building codes.

Course Goals & Objectives:
• Develop student's knowledge of building envelope systems and with the pros and cons of related design decisions.
• Develop student's abilities to analyze the sustainability of building systems in their studio projects using energy-modeling software and evidence based strategies.
• Develop student's knowledge and understanding of "integrated practice".
• Develop student's abilities to design in a holistic manner, bringing performance based and evidence based strategies into the conceptual design process.

Student Performance Criteria:
A.4. Architectural Design Skills
A.5. Ordering Systems
B.3. Codes and Regulations
B.9. Building Service Systems
C.3 Integrative Design

Architectural Design Skills: Students will be able to effectively use basic formal, organizational and environmental principles and the capacity of each to inform two- and three-dimensional design.

Ordering Systems: Students will be able to apply the fundamentals of both natural and formal ordering systems and the capacity of each to inform two- and three-dimensional design.

Codes and Regulations: Students will be able to design sites, facilities, and systems that are responsive to relevant codes and regulations, and include the principles of life-safety and accessibility standards.

Building Service Systems: Understanding of the basic principles and appropriate application and performance of building service systems, including lighting, mechanical, plumbing, electrical, communication, vertical transportation, security, and fire protection systems.

Integrative Design: Ability to make design decisions within a complex architectural project while demonstrating broad integration and consideration of environmental stewardship, technical documentation, accessibility, site conditions, life safety, environmental systems, structural systems, and building envelope systems and assemblies.

Topical Outline:
Review of basic principles of structure   5% of semester
The integration of structure and architecture   5% of semester
Revit Building Information Modeling   50% of semester
The role of detail in building assembly   10% of semester
Development of structural schemes   30% of semester

Prerequisites:
AAE 771L. Co-requisite AAE 772L

Textbooks/Learning Resources:
- Pat Guthrie. *The Architects Portable Handbook,* 4th Ed. The McGraw-Hill Companies Inc. 2010
- Francis Ching. *Building Construction Illustrated*, 5th Ed. John Wiley & Sons Inc. 2014
- Detail Magazine: www.detail-online.com

Offered:
Spring Semester, annually.

Sample Assignment Calendar

Schematic Building Systems Analysis: Oct. 1
An assessment of ordering systems, codes, regulations, and building service systems available for studio integration. This report will be formatted as a research booklet.

Design Development Log: Nov. 1
Documentation of the integrative design processes linking systems and studio design project. The research booklet will be used as a design resource for each student.

Research Booklet: Dec. 1
A reflective report chronicling design decisions within a complex architectural project, which demonstrates broad integration of environmental and architectural systems.

Grading Rubric: *Evidence of fulfilling student performance criteria must be included in the written and graphic presentation of each assignment.*

Schematic Analysis (A.5, B.3)	20%
Design Devolopment Log (A.4, B.9)	20%
Research Booklet (C.3)	60%
Total	100%

Academic Misconduct—Academic integrity is a legitimate concern for every member of the campus community; all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility and professionalism. By choosing to join the UNLV community, students accept the expectations of the Student Academic Misconduct Policy and are encouraged when faced with choices to always take the ethical path. Students enrolling in UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's function as an educational institution.
An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another, from the Internet or any source, without proper citation of the sources. See the *Student Academic Misconduct Policy* (approved December 9, 2005) located at: https://www.unlv.edu/studentconduct/student-conduct.

Copyright—The University requires all members of the University Community to familiarize themselves **with** and to follow copyright and fair use requirements. **You are individually and solely responsible for violations of copyright and fair use laws. The university will neither protect nor defend you nor assume any responsibility for employee or student violations of fair use laws.** Violations of copyright laws could subject you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies. Additional information can be found at: http://www.unlv.edu/provost/copyright.

Disability Resource Center (DRC)—The UNLV Disability Resource Center (SSC-A 143, http://drc.unlv.edu/, 702-895-0866) provides resources for students with disabilities. If you feel

that you have a disability, please make an appointment with a Disabilities Specialist at the DRC to discuss what options may be available to you. If you are registered with the UNLV Disability Resource Center, bring your Academic Accommodation Plan from the DRC to the instructor during office hours so that you may work together to develop strategies for implementing the accommodations to meet both your needs and the requirements of the course. Any information you provide is private and will be treated as such. To maintain the confidentiality of your request, please do not approach the instructor in front of others to discuss your accommodation needs.

Religious Holidays Policy—Any student missing class quizzes, examinations, or any other class or lab work because of observance of religious holidays shall be given an opportunity during that semester to make up missed work. The make-up will apply to the religious holiday absence only. It shall be the responsibility of the student to notify the instructor **within the first 14 calendar days of the course for fall and spring courses (excepting modular courses), or within the first 7 calendar days of the course for summer and modular courses,** of his or her intention to participate in religious holidays which do not fall on state holidays or periods of class recess. For additional information, please visit: http://catalog.unlv.edu/content.php?catoid=6&navoid=531.

Transparency in Learning and Teaching—The University encourages application of the transparency method of constructing assignments for student success. Please see these two links for further information:

https://www.unlv.edu/provost/teachingandlearning

https://www.unlv.edu/provost/transparency

Incomplete Grades—The grade of I—Incomplete—can be granted when a student has satisfactorily completed three-fourths of course work for that semester/session but for reason(s) beyond the student's control, and acceptable to the instructor, cannot complete the last part of the course, and the instructor believes that the student can finish the course without repeating it. The incomplete work must be made up before the end of the following regular semester for undergraduate courses. Graduate students receiving "I" grades in 500-, 600-, or 700-level courses have up to one calendar year to complete the work, at the discretion of the instructor. If course requirements are not completed within the time indicated, a grade of F will be recorded and the GPA will be adjusted accordingly. Students who are fulfilling an Incomplete do not register for the course but make individual arrangements with the instructor who assigned the I grade.

Tutoring and Coaching—The Academic Success Center (ASC) provides tutoring, academic success coaching and other academic assistance for all UNLV undergraduate students. For information regarding tutoring subjects, tutoring times, and other ASC programs and services, visit http://www.unlv.edu/asc or call 702-895-3177. The ASC building is located across from the Student Services Complex (SSC). Academic success coaching is located on the second floor of the SSC (ASC Coaching Spot). Drop-in tutoring is located on the second floor of the Lied Library and College of Engineering TEB second floor.

UNLV Writing Center—One-on-one or small group assistance with writing is available free of charge to UNLV students
at the Writing Center, located in CDC-3-301. Although walk-in consultations are sometimes available, students with
appointments will receive priority assistance. Appointments may be made in person or by calling 702-895-3908. The
student's Rebel ID Card, a copy of the assignment (if possible), and two copies of any writing to be reviewed are
requested for the consultation. More information can be found at: http://writingcenter.unlv.edu/.

Rebelmail—By policy, faculty and staff should e-mail students' Rebelmail accounts only. Rebelmail is UNLV's official e-mail system for students. It is one of the primary ways students receive official university communication such as information about deadlines, major campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the university. Students' e-mail prefixes are listed on class rosters. The suffix is always @unlv.nevada.edu. **Emailing within WebCampus is acceptable.**

Final Examinations—The University requires that final exams given at the end of a course occur at the time and on the day specified in final exam schedule. See the schedule at:
http://www.unlv.edu/registrar/calendars.