

Advanced Residential Building Science

Course Syllabus

BBE 4414/5414 – Fall
Department of Bioproducts and Biosystems Engineering

Huelman
University of Minnesota

Course Title: Advanced Residential Building Science; 4 credits
Day; Time: Tuesdays & Thursdays at 8:45 to 10:00 AM; Fridays at 8:45 to 11:15 AM
Meeting Room: 302 Kaufert Lab; St. Paul Campus

Instructor: Patrick H. Huelman
322C Kaufert Lab; St. Paul Campus
phuelman@umn.edu
612-624-1286 (please leave a message)
Office Hours: Tuesdays & Thursday; 10:00 AM to 11:30 AM

Course Description: This course is intended to be an advanced course. I expect students to be fully prepared and engaged in the content and its application. Approximately 80% of the course will be structured to cover the critical content, but time will be left for discussion and/or to meet your particular interests. It is my hope that this course will give you an excellent grasp of key building science principles and the ability to put these principles to work in a both a qualitative and quantitative manner to resolve common energy, moisture, and indoor air quality issues in residential buildings.

Learning Objectives: Upon successful completion of this course, the student should be:

- fully versed in key building science principles,
- familiar with contemporary energy, moisture, and indoor air quality issues in housing construction,
- able to solve common heat, air, and moisture problems,
- able to comfortably communicate important principles through calculations, reports, and oral presentation.

Required Texts: ASHRAE Handbook: Fundamentals (I-P). ASHRAE. 2017.
High Performance Enclosures. Straube. 2012.
Builder's Guide for Cold Climates. EEBA. 2004 or later.

Supplemental Reading: Building Science for Building Enclosures. Straube & Burnett. 2005.
Water in Buildings. Rose. 2005.
Building Science for Cold Climates. Hutcheon & Handegord. 1983.
Understanding Psychrometrics. Gatley. 2002
Builder's Guide for Hot-Humid Climates. EEBA. 2010.
Builder's Guide for Mixed Humid Climates. EEBA. 2005.
Builder's Guide for Hot-Dry & Mixed-Dry Climates. EEBA. 2004.

Grading System:	Assignments: 3 @ 5 points each	15
	Mid-Term 1	15
	Mid-Term 2	15
	Mid-Term 3	15
	Laboratory Assignments: 10 @ 2.5 points each	25
	Final Project (Paper & Presentation)	15

		100

All exams will be a combination of short answer and problems. Only in an emergency will a student be allowed to make-up an exam. If you have such an emergency, you must notify me by phone or in person before the exam.

There will be three assignments, ten labs, and one project during the quarter. Generally you will have one week to complete the assignments and labs. All assignments and labs are due at the beginning of the class period specified. Assignments or labs turned in late will be worth one-half of the original grade. There will be no extra credit work available to make up lost points.

The final letter grade will be based on straight percentages as follows:

94 - 100	=	A
90 - 93	=	A-
87 - 89	=	B+
84 - 86	=	B
80 - 83	=	B-
77 - 79	=	C+
74 - 76	=	C
70 - 73	=	C -
67 - 69	=	D+
60 - 66	=	D
0 - 59	=	F

Course Policies: You are expected to be attentive during class, ask questions if you do not understand something, and to offer your opinion. You are also expected to listen respectfully to other students and to the instructors. Computers are to be used for note taking only and cannot to be connected to the internet. Racism, sexism, and other forms of bigotry are inappropriate to express in this class.

Incompletes will be given only in the case of a prolonged illness. Exceptions will be rare and will be at the discretion of the instructor. Procrastination and failure to review the class schedule are not acceptable rationale for receiving an incomplete.

Students are responsible for maintaining academic integrity by submitting his/her own original work. All suspected cases of academic dishonesty will be vigorously pursued through the College's Academic Honor System.
