

**Advanced Residential Building Science****Class Schedule (10/17)****BBE 4414/5414 - Fall 2014****Huelman****Department of Bioproducts and Biosystems Engineering****University of Minnesota**

Note: This is a general course schedule. It is subject to change, but changes will be announced in class.

<b>Class Date</b>	<b>Topic</b>	<b>Assigned Reading</b>	<b>Assignment Due</b>
September 2	House as a System	BG: Intro, Systems & Design HPE: Chapter 1	
September 4	Building Enclosure Intro to HAM	HPE: Chapters 2 & 3 (intro only) HF: Chapters 2.1-2.3 & 4.1-4.21 (review)	
September 5	Discussion & Lab 1.	BSI-39: 5 Fundamental Changes HPE: Appendix B.1	
September 9	Thermal Comfort Design Conditions	HF: Chapter 9.1-9.23 HF: Chapter 14	
September 11	Intro to Air Exchange		
September 12	Discussion & Lab 2.	BSD: Air Flow Control in Bldgs.	Lab 1. Due
September 16	Airflow around Bldgs.	HF: Chapter 24 (review modeling)	
September 18	Infiltration & Ventilation	HF: Chapter 16.1-16.25	
September 19	Discussion & Lab 3.	BSI: Just Right & Airtight	Lab 2. Due
September 23*	House of Pressure Demo		
September 25	Thermal Insulation	HF: Chapter 25.1-25.11 HF: Chapter 26.1-26.14 HF: Chapter 27.1-27.12	
September 26	Discussion & Lab 4.	BSI: A Bridge Too Far	Lab 3. Due
September 30	Thermal & Moisture	HF: Chapter 1.1-1.16	
October 2	Moisture (Vapor)	HF: Chapter 25.10-25.17 HF: Chapter 26.15-25.20 HF: Chapter 27.1-27.12) BG: Chapter 4 (App. II & III in older books)	
October 3	Discussion & Lab 5.	BSI: So Much Younger	Lab 4. Due
October 7	Moisture (Liquid)		
October 9	Moisture Control		
October 10	Exam 1		

October 14	Loads Introduction Fenestration – Thermal	HF: Chapter 14 (review) HF: Chapter 15 HPE: Chapter 3.3.5 to 3.3.8	
October 16	Fenestration – Solar	HF: Chapter 15	Assignment 1. Due
October 17	Discussion & Lab 5.	BSI: Glazed and Green	
October 21	Heating Load Calcs	HF: Chapter 17 & 18 (review)	
October 23	Cooling Load Calcs	HF: Chapter 17 & 18 (review)	
October 24	Discussion & Lab 6.	BSI-081 Zeroing In	Lab 5. Due
October 28	Energy Estimating	HF: Chapter 19	Assignment 2. Due
October 30	Wrap-up & Lab 7.		
October 31	Exam 2		Lab 6. Due
November 4	HVAC Intro		Select Paper Topic
November 6	Heating Systems	HF: Chapter 28.1 -28.12 & HO	
November 7	Discussion & Lab 8.	BSI:022 HVAC	Lab 7. Due
November 11	Air-Conditioning Systems	HF: Chapter 18 & HO	
November 13	Air Processing / Filtration	HF: Chapter 10, 11, 12 & HO	
November 14	Discussion & Lab 9.	Fireplaces? / BD:113 GSHP	Lab 8. Due
November 18	Duct Systems	HF: Chapter 21	
November 20	Ventilation	RVS Handout Chapters 1 and 2	
November 21	Discussion & Lab 10.	BSI:017 IAQ / BSI:16 Ventilation	Lab 9. Due
November 25	Ventilation (continued)		
November 27	No Class (Thanksgiving)		
November 28	No Class (Thanksgiving)		
December 2	Make-up Air	RVS Handout Chapter 3	Lab 10. Due
December 4	Combustion Air	RVS Handout Chapter 4 BG: Chapter 8	Assignment 3. Due
December 5	Exam 3		
December 9	Wrap-up & Class Presentations		
December 13	Final Period (4:00 – 6:00) Class presentations		Final Project Paper Due

---

---

**Required Texts:** ASHRAE Handbook: Fundamentals (I-P). ASHRAE. 2013.  
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 Pyschrometrics. 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.

---

---