

HCOL 2000 J

Course Title: Human Decision Making and Choice

Course day and time: TT 08:30am-09:45am

Location: 027 UHS

Instructors Name:

Eline van den Broek-Altenburg, PhD;

Assistant Professor

Department of Radiology

Larner College of Medicine

89 Beaumont Avenue, office Given C415A

Burlington, VT 05405

Contact: Eline.altenburg@med.uvm.edu

Course Description: Individual choice is the foundation of modern society driving decisions ranging from what type of cereal to buy to selecting spouses and careers. Understanding how and why individuals make the choices they do has occupied philosophers and researchers from the ancient Greeks to modern marketers. Many disciplines have developed theoretical and empirical approaches to understand and predict human choices. This field is particularly relevant to health, where consumers face some of the most meaningful and critical choices in their lives. Examples include:

- Should I have a surgery or wait and see if I heal?
- Which doctor should I go to when I feel sick?
- Should I switch from smoking cigarettes to vaping?
- Do I really need to diet and exercise, or is McDonalds okay instead?
- What type of health insurance should I buy?
- As a society, should we require health insurance companies to cover a new drug that is expensive and has a limited market, but may save lives?
- Should we provide coverage for childhood immunizations?

This course reviews a wide-ranging set of theoretical models for individual choices drawn from social psychology, (neuro) economics, (moral) philosophy, marketing and other disciplines and then introduces students to a set of standard choice modeling approaches. We begin with theoretical frameworks based on the rational model of judgment and decision making and then progress to applications where individuals face tradeoffs in their choices. We emphasize choices in health and healthcare, but delve into other related fields as well to see linkages between different academic disciplines.

The course culminates in an in-depth introduction on how to develop a choice experiment for either research or marketing in health. Students will be exposed to standard software used to develop experimental designs and will develop their own experiment, drawing on class materials and research from the academic literature in their chosen area.

No prerequisites are necessary for this class, basic knowledge of statistics desired.

Learning Objectives:

- Understand the theoretical foundations used by different academic disciplines to conceptualize choices in health and how to link these to the generation of working research hypotheses on social phenomena that can be tested. These include both observed choices (e.g., insurance or hospital choices) and unobserved choices (e.g., preferences for health and well-being)
- Synthesize basic concepts and terminology of preference logic and numerical representation of preferences in health and healthcare, including the use of appropriate theories and models to predict or explain change in social and health systems over time.
- Analyze how choices are linked to preferences, and how inferring preferences from individual choices in health and healthcare informs our observation of human social phenomena and our ability to analyze social systems, both overall and in their components.
- Describe the different standard models for choice modeling in health, and the links to other fields such as transportation, environmental science and others including the key issues in developing experimental choice sets in health and be able to use standard software to design a choice experiment.

Textbook Materials:

Readings will be drawn from the following articles and textbooks, available from instructor and online:

1. Ebenstein, W and Ebenstein, A.O. “Great political thinkers – Plato to the Present”, 5th Edition (UVM Library – e-reserve)
2. Arrow, K.J., “Social Choice and Individual Values” (Instructor - Brightspace)
3. Stanford Encyclopedia of Philosophy,: “Preferences”, Oct 4, 2006 (Instructor - Brightspace)
4. Hensher, D., Rose, J and Greene, W. “Applied Choice Analysis, 2nd Edition.” (UVM Library – e-reserve)
5. Hess, S and Daly, A. “Handbook of Choice Modeling” (For purchase online (\$65): https://www.ebooks.com/en-us/book/detail/1777735/?utm_source=Bing&utm_medium=ppc&utm_campaign=merchant)

Course Structure:

This course will be based on a discussion / seminar style format. Readings will be assigned ahead of time and are expected to be read before class begins. Key points will be drawn out during the discussion. Additionally, short exercises will be assigned during the class time that will be completed and discussed in class.

The course includes lab sessions where participants are provided with discrete choice software to learn how to conduct discrete choice experiments taught in lectures and gain hands-on experience in using new discrete choice techniques for practical applications. By examining actual case studies of discrete choice methods, students will become familiar with problems of model formulation, estimation, testing, and forecasting.

Method of Evaluation

Grades will be based on the following:

- In class exercises 20%
- Midterm Exam 30%
- Project Paper 30%
- Project presentation 20%

In Class Exercises: These will be written and verbal assignments to be completed by students in groups during class time. These exercises are completed, discussed and turned in during the class. Students absent from class will not be able to complete these exercises. The exercises cannot be made-up.

Midterm Exam: The midterm exam will be in class and is closed book. It will be short answer and based on the theoretical models presented in the first half of class.

Project: Students will complete a project for the final product. The project will be done in groups of two or three students. Each group will prepare a Discrete Choice Experiment. The group will write a paper introducing the topic and justifying the attributes selected for the experiments as well as the levels. Additionally, each group will present the experiment to the class in the final exam week, explaining the experimental design and the structure. There will be in-class lab time during which students will learn how to use the appropriate software SurveyEngine.

Schedule & Topics:

Week	Topic	Readings
<p>1 Aug 29*,31*</p>	<p>Intro to Human Decision Making</p> <p>A History of Reason and Utility</p>	<p><u>Tuesday:</u> No readings</p> <p><u>Thursday:</u> Ebenstein, W and Ebenstein, A.O, “Plato to the Present”</p> <ul style="list-style-type: none"> • Chapter 2: The Greek Faith in Reason; • Chapter 3: Plato; • Chapter 25: Bentham
<p>2 Sept 5,7</p>	<p>Preferences and Choice</p> <p>Consumer Choice</p>	<p><u>Tuesday:</u> - Arrow, K.J., “Social Choice and Individual Values”: <ul style="list-style-type: none"> • Chapter 1: Introduction; • Chapter 2: The Nature of Preference and Choice - Stanford Encyclopedia of Philosophy: “Preferences” <i>up to par.2.4</i></p> <p><u>Thursday:</u> Hess, S and Daly, A. “Handbook of Choice Modeling”: <ul style="list-style-type: none"> • Chapter 2: The New Science of Pleasure: Consumer Choice Behavior and the Measurement of Well-Being (Daniel McFadden) • Chapter 3: Psychological research and theories on preferential choice </p>
<p>3 Sept 12,14</p>	<p>Stated Preferences vs. Revealed Preferences and Constraints</p> <p>Real Choices and Hypothetical Choices and Choice Context</p>	<p><u>Tuesday:</u> Hensher, D., Rose, J and Greene, W. “Applied Choice Analysis, 2nd Edition.”: <ul style="list-style-type: none"> • Chapter 1: In the beginning • Chapter 2: Choosing </p> <p><u>Thursday:</u> Hess, S and Daly, A. “Handbook of Choice Modeling”: <ul style="list-style-type: none"> • Chapter 5: Choice Context • Chapter 10: Real Choices and Hypothetical Choices </p>
<p>4 Sept 19,21</p>	<p>Theories of Choices and Decision-Making in Health</p>	<p><u>Tuesday:</u> Instructor handouts (posted in Brightspace)</p> <ul style="list-style-type: none"> • Anderson model • Health belief model • Integrated behavioral model • Addiction models / tobacco quit models

	A Conceptual Model	<u>Thursday:</u> Instructor handouts
5 Sept 26*,28*	Random Utility Maximization (RUM) and Prospect Theory Utility Functions	<u>Tuesday:</u> <ul style="list-style-type: none"> • Daniel Kahneman and Richard H. Thaler, “Utility Maximization and Experienced Utility” • Daniel Kahneman and Amos Tversky, “Prospect Theory: An Analysis of Decision Under Risk” <u>Thursday:</u> <ul style="list-style-type: none"> • Trout Rader, “The Existence of a Utility Function to Represent Preferences” • Eric P. Kroes, Robert J. Sheldon, “Stated Preference Methods: An Introduction”
6 Oct 3,5	Alternative Theories of Choice Beyond Simple Discrete Choice	<u>Tuesday:</u> Hess, S and Daly, A. “Handbook of Choice Modeling”: <ul style="list-style-type: none"> • Chapter 12: Attribute processing as a behavioral strategy in choice making Instructor handouts <ul style="list-style-type: none"> • Random Regret Models • Elimination by Aspects • Moral Choices • Risk and Uncertainty <u>Thursday:</u> Hess, S and Daly, A. “Handbook of Choice Modeling”: <ul style="list-style-type: none"> • Chapter 15: Models for ordered choices • Chapter 17: Hybrid choice models
7 Oct 10*,12*	Midterm	<u>Tuesday:</u> In-class Exam <u>Thursday:</u> Discuss projects and groups
	Fall Break	
8 Oct 24,26	Introduction to surveys and choice experiments Survey examples	<u>Tuesday:</u> Hess, S and Daly, A. “Handbook of Choice Modeling”: <ul style="list-style-type: none"> • Chapter 7: Stated choice experimental design theory: the who, the what and the why? <u>Thursday:</u> Instructor handouts <ul style="list-style-type: none"> • Data structure • Data estimation

<p>9 Oct 31, Nov 2</p>	<p>Model estimation: CL, MNL and MMNL models</p>	<p><u>Tuesday:</u> Instructor handouts</p> <ul style="list-style-type: none"> • CL, MNL, MMNL <p><u>Thursday:</u> Hess, S and Daly, A. “Handbook of Choice Modeling”:</p> <ul style="list-style-type: none"> • Chapter 21: Simple ways to estimate choice models for single consumers • Chapter 25: Forecasting choice
<p>10 Nov 7,9</p>	<p>Applications: Discrete choice experiments in health</p>	<p><u>Tuesday:</u> - Hess, S and Daly, A. “Handbook of Choice Modeling”:</p> <ul style="list-style-type: none"> • Chapter 28: <i>Choice modeling research in health economics</i> <p>- van den Broek-Altenburg and Atherly, “Using discrete choice experiments to measure preferences for hard to observe choice attributes to inform health policy decisions.”</p> <p><u>Thursday:</u> Instructor handouts</p>
<p>11 Nov 14*,16*</p>	<p>Applications: Discrete choice experiments in marketing, environmental and transportation</p>	<p><u>Tuesday:</u> Hess, S and Daly, A. “Handbook of Choice Modeling”:</p> <ul style="list-style-type: none"> • Chapter 26: Deciding how to decide: an agenda for multistage choice modeling research in marketing <p><u>Thursday:</u> Hess, S and Daly, A. “Handbook of Choice Modeling”:</p> <ul style="list-style-type: none"> • Chapter 27: Choice modeling research in environmental and resource economics • Chapter 29: Transport research needs
	<p>Thanksgiving Break</p>	
<p>12 Nov 28,30</p>	<p>Applications: Discrete choice experiments (part 1)</p>	<ul style="list-style-type: none"> • Tuesday: Introduction to SurveyEngine • Thursday Lab 1: Project Development
<p>13 Dec 5*,7*</p>	<p>Applications: Discrete choice experiments (part 2)</p>	<ul style="list-style-type: none"> • Tuesday: SurveyEngine Applications • Thursday Lab 2: Project Development
<p>14 Dec 12*,14*</p>	<p>Class Presentations</p>	