

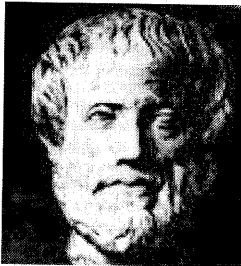


LOGIC 110

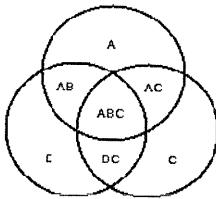
COASTAL CAROLINA UNIVERSITY

Fall Semester 2006

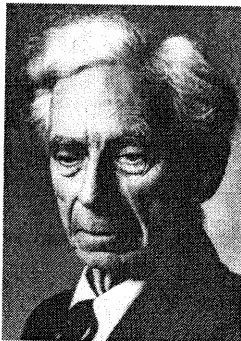
This course introduces students to the logical structure of deductive, mathematical, and inductive reasoning that underlie all rational thought. Students learn about informal fallacies, truth tables, subjective and objective probability assessments, traditional Aristotelian syllogisms, proof procedures, and translating arguments into consistent linguistic structures as well as into propositional (symbolic) form. The course also allows students to understand and apply fundamental mathematical and statistical concepts such as proof, truth table, definitions, probability, validity, soundness and counterexample.



Aristotle
The First Logician



Venn-Diagrams are an important way to evaluate Aristotelian syllogisms



Bertrand Russell
The Father of Modern Logic

Instructor:

Dr. Nils Ch. Rauhut
EFHA 275
Phone: 349-2547
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Meeting Times:

M, W, Fr 12:30 PM – 01:20 PM in EFHA 109

Office Hours:

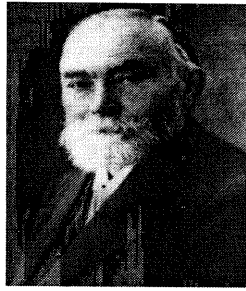
M, W, Fr 10:00 AM – 12:00 PM (or by appointment) in EFHA 275.

Course Material:

Layman, Stephen.: *The Power of Logic*. (Third Edition)
McGrawHill, 2004.

Course Objective:

The purpose of this course is to introduce students to formal methods of reasoning. We begin the course by asking what arguments are and how they can be classified and evaluated. In the second part of the class we will discuss and study important informal fallacies. After that, we will focus on modern propositional logic. We will learn a basic formal language PL and we will use it to construct formal proofs. At the end of the course, we will discuss inductive logic and explore the basic elements of probability theory. The class is a good preparation for a more advanced logic course and should be useful for those students who are preparing to take the LSAT examination. Moreover the class also helps



Gottlob Frege
He developed the first formal language



Alfred Tarski
He developed the first formal definition of truth



Kurt Gödel
He demonstrated the formal limits of all formal systems

students to understand and apply fundamental mathematical and statistical concepts.

At the end of the semester students should be able to:

- ◆ Recognize Fallacies.
- ◆ Understand and apply the logical and mathematical concepts *validity, argument, soundness, proof, implication, inference, contradiction, inconsistency, deduction, and induction.*
- ◆ Construct and evaluate truth tables.
- ◆ Formalize an argument with the help of a formal language.
- ◆ Construct proofs in propositional logic.
- ◆ Understand that there are different conceptions of probability.
- ◆ Understand and apply basic rules of probability calculation.

GRADING:

The final grade in this class will be determined as follows:

5 Tests	50 pts
Midterm	25 pts
Final	25 pts

One test is worth ten points, the Final is worth twenty-five points etc... . The final course grade will be calculated as follows:

91-100 points = A	81-90 points = B
71-80 points = C	61-70 points = D
Below 61 = F	

Practice Exercises on Web CT:

Logic can only be learned by doing it as frequently as possible. It is therefore pivotal that you work on logical problems on your own outside of class throughout the semester. In order to facilitate your learning I have created a WebCT page for this class. Our WebCT page contains many exercises and tests that allow you to practice your logic skills. It is highly recommended that you practice at least three days per week on our page.

Reading and Examination Schedule Logic 110 2006

Monday 14	Wednesday 16	Friday 18
	Basic Concepts: Validity and Soundness Read: Layman 1-12	Basic Concepts: Forms/Counterexamples Read: Layman 12-20
Monday 21	Wednesday 23	Friday 25
Basic Concepts: Famous Forms Read: Layman 20-37	Basic Concepts: Strength and Cogency Read: Layman 37-46	Test #1
Monday 28	Wednesday 30	Friday 01
Identifying Arguments: Arguments and Non-Arguments Read: Layman 47-53	Logic and Language: Logic, Meaning and Emotive Force Read: Layman 89-94	Logic and Language: Definitions Read: Layman 95-110
Monday 04	Wednesday 06	Friday 08
Labor Day Holiday	Logic and Language: Using Definitions Read: Layman 110-122	Test #2
Monday 11	Wednesday 13	Friday 15
Informal Fallacies: Irrelevant Premises Read: Layman 123-139	Informal Fallacies: Ambiguity Read: Layman 139-149	Informal Fallacies: Unwarranted Assump. Read: Layman 149-166
Monday 18	Wednesday 20	Friday 22
Test #3	Statement Logic: Symbolizing Read: Layman 248-263	Statement Logic: Symbolizing Read: Layman 248-263
Monday 25	Wednesday 27	Friday 29
Statement Logic: Truth Tables Read: Layman 263-271	Statement Logic: Truth Tables Read: Layman 263-271	Statement Logic: Evaluating Arguments Read: Layman 271-279
Monday 02	Wednesday 04	Friday 06
Statement Logic: Tautology, Contradiction Read: Layman 280-287	Statement Logic: Logical Equivalence Read: Layman 280-287	Midterm
Monday 09	Wednesday 11	Friday 13
Statement Logic: Basic Inference Rules Read: Layman 297-313	Statement Logic: Basic Inference Rules Read: Layman 297-313	Student Holiday
Monday 16	Wednesday 18	Friday 20
Statement Logic: More Inference Rules Read: Layman 313-324	Statement Logic: More Inference Rules Read: Layman 313-324	Statement Logic: More Inference Rules Read: Layman 325-336
Monday 23	Wednesday 25	Friday 27
Statement Logic: More Inference Rules Read: Layman 325-336	Statement Logic: Conditional Proof Read: Layman 336-345	Statement Logic: Conditional Proof Read: Layman 336-345
Monday 30	Wednesday 01	Friday 03
Statement Logic: Reductio ad Absurdum Read: Layman 345-355	Statement Logic: Reductio ad Absurdum Read: Layman 345-355	Test #4
Monday 06	Wednesday 08	Friday 10
Induction: Introduction Read Layman: 449-455	Induction: Authority/Enumeration Read Layman: 456-464	Induction: Mill's Method Read Layman: 464-478
Monday 13	Wednesday 15	Friday 17
Induction: Arguments from Analogy Read Layman: 478-488	Induction: Probability Read Layman: 489-494	Test #5
Monday 20	Wednesday 22	Friday 24
<i>Thanksgiving Break</i>	<i>Thanksgiving Break</i>	<i>Thanksgiving Break</i>
Monday 27	Wednesday 29	Friday 01
Induction: Probability Read Layman: 489-494	Induction: Rules of Probability Read Layman: 495-506	The Final Examination is on Friday December 4 at 1:30 PM.