

Dr. Frank Fair--contact Information: Ph: 936-294-1509 Fax: 936-294-3798 email: psy\_fkf@shsu.edu  
Office and office hours: AB4 402 MWF 11:00-11:50, TTH 9:30-10:50, and other times by appointment

**CATALOGUE COURSE DESCRIPTION:** PHL 362 Introduction to Contemporary Logic introduces the student to the principles of ordered thought and to the terminology and rules of symbolic logic. Discusses the logic of statements and the logic of predicates, quantifiers, and identity. Credit 3.

**COURSE OBJECTIVES:** (a) to acquaint students with modern first-order propositional logic and predicate logic, the background of all of today's programming languages, (b) to give students a thorough grasp of fundamental concepts of logic such as deductive validity, truth functions, and quantifiers, (c) to give students opportunities to practice the skills that are required to construct rigorous proofs, (d) to explore philosophical topics connected with logic such as the nature of truth and the power and the limits of proof,

**TEXTS AND OTHER REQUIRED MATERIALS:**

- (1) *Formal Logic: Its Scope and Limits* 4th edition by Richard Jeffrey
- (2) *Elements of Deductive Inference* by Joseph Bessie and Stuart Glennan

**NOTE:** The *Elements of Deductive Inference* textbook comes with a CD for students. The Inference Engine gives feedback on attempted solutions for a number of the problems in the textbook.

**GRADING:** The grading scale is: 90-100 = A, 80-89 = B, 70-79 = C, 60-69 = D, below 60 = F.

**Tests:** There will be three major exams plus a final exam. Each of the four exams will count 100 points for a total of 400. There will also be four brief quizzes each of which count 50 points, and together with the four exams that makes for a total of 600 points. The exams and quizzes will consist of problems modeled on those done in the homework and of items that pose conceptual questions such as requiring the definitions of key concepts. Each test is announced in advance and there will ordinarily be a class period set aside for review before each exam. The final average is a result of adding the point total for the exams to the point totals for the items described below and then dividing by 6 for the final average.

**Homework:** there will be a number of homework assignments that will each add one point to the overall point total for an assignment acceptably done. That means every problem attempted and turned in on time. **LATE OR INCOMPLETE WORK IS NOT ACCEPTED.** **IMPORTANT NOTE:** Assignments not done acceptably will subtract one point from the overall point total.

**Class participation:** there will be occasional extra credit for class participation, by asking relevant questions and making informed comments, and by participating in problem solving on the blackboard. With regard to the latter, credit is one point for writing a proof on the blackboard and one point for discovering a flaw in a proof written on the blackboard.

**ABSENCES:** In accordance with University regulations, I will take roll every period. I make no use of the absence record in determining grades. However, if you do not attend class, you must drop the course before the deadline of Thursday, May 8; otherwise, you will receive an F.

**MAKE-UPS:** I hate to give make-up exams. If I give one, it is likely to be longer and harder than the regular test since you would have more time to prepare for it. You must have valid reason for missing an exam. Another test the same day, for example, does not count. If you must miss a test, see me as soon as possible to let me know your reason for missing it. **YOUR EXCUSE MUST BE WRITTEN AND APPROPRIATELY DOCUMENTED. AN EXCUSE THAT DOES NOT WITHSTAND VERIFICATION WILL RESULT IN A GRADE OF ZERO FOR THAT EXAM.** If your excuse is valid, then we will make the necessary arrangements for you to take a make up exam as soon as possible.

**STANDARD POLICIES:** Each of these standard policies is stated in full on the Blackboard website for this course under Course Documents. I have extracted from the full statement a key element as a reminder of the policy in its entirety, but the student must download the posting on Blackboard to have the full policy statement. Here are the six standard policy matters: (1) NOTICE TO PERSONS WITH A

DISABILITY: No accommodation can be made until you register with the Counseling Center. There will be no retroactive accommodations. (2) ACADEMIC DISHONESTY: Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. (3) CLASSROOM RULES OF CONDUCT: Students are expected to assist in maintaining a classroom environment that is conducive to learning. (4) VISITORS IN THE CLASSROOM: It is at the instructor's discretion whether or not he/she will be allowed to remain. (5) ABSENCE ON RELIGIOUS HOLY DAYS: A student desiring to absent himself/herself from a scheduled class in order to observe (a) religious holy day(s) shall present in advance to each instructor involved a written statement concerning the religious holy day(s). (6) COURSE EVALUATIONS: In accordance with University policy, students will have an opportunity near the end of the semester on a set day and time to complete a course evaluation.

TENTATIVE SCHEDULE for PHL 362.01 CID#1920 MWF 12:00-12:50 AB4 302 Spring 2008

### January

#### Unit I: Basic Concepts of Deductive Logic, Identifying Arguments, Symbolizing Statements, and Constructing Truth Tables

Wed 16 Introduction to the course. Handout No. 2 on deductive argument forms and the classical concept of deductive validity.

Fri 18 Read *Elements of Deductive Inference* (EDI) Chap. 1 Introduction pp. 1-8, EDI Chap. 2 Statement Logic I 24-35. Assignment #1:(Do handout Ex. Set No. 2)

Mon 21 **University Holiday in Honor of Dr. Martin Luther King Day**

Wed 23 Read EDI Chap. 2 pp. 36-62 and Handout No. 3. Assignment #2:(Do even numbered problems in Ex. 2.3 pp. 52-53)

Fri 25 Reading EDI Chap. 2 pp. 65-69. Read Handout on Multi-step inferences. Assignment #3:(Do even numbered problems in 2.4 Parts I & II pp. 63-65)

Mon 28 Assignment #4:(Do problems from Handout on Multi-step Inferences) **FIRST QUIZ--50 points**

Wed 30 Read EDI Chap. 3 Statement Logic II: Semantic Methods pp. 71-81.

### February

Fri 1 Read EDI Chap. 3 pp. 82-99. Assignment #5:(Do even numbered problems in Ex. 3.2 Part I, do both problems in 3.2 Part II p. 86, and do Ex. 3.4 Part II #22 and #24 p. 99) Last day to drop without a Q and receive a 100% refund.

Mon 4 Read Jeffrey *Formal Logic: Its Scope and Limits* (FL) Chap. 1 Truth-Functional Logic pp. 1-18  
Assignment #6:(FL 1.18 Problems 1, 2, 3, 7, 8, 9, 10, 11(a), 11 (b))

Wed 6 Assignment #7:(Ex. 3.4 Part III evens in EDI pp. 100-101.)

Fri 8 Review for First Exam

Mon 11 **FIRST EXAM--100 points**

#### Unit II: Proof Techniques In Statement Logic

Wed 13 EDI Chap. 4 Statement Logic III: Syntactic Methods pp. 155-169 & 195-197 Inference Rules

Fri 15 Assignment #8:(Ex. 4.2 p. 165 Part I even numbers and Ex. 4.3 pp. 170-171 Part I even numbers)

Mon 18 Read EDI Chap. 4 pp. 173-183 Assignment #9:( Ex. 4.2 pp. 165-166 Part II evens and Ex. 4.3 Part II evens pp. 171-172)

Wed 20 Assignment #10:(Do problems on Conditional Proof and Reduction ad Absurdum from a Handout).

Fri 22 Read a Handout on hypothesis testing about Semmelweis and a Handout on the logic of refutation and confirmation

Mon 25 Read EDI Chap. 3 pp. 102-112. **SECOND QUIZ--50 points**

Wed 27 Read EDI pp. 125-138 on the truth tree method. Assignment #11:(Ex. 3.9 evens p. 138)

Fri 29 Read Jeffrey *Formal Logic* Chap. 2 Truth Trees pp. 21-34 Assignment #12:(Ex. 2.6 problems 2(a), 2(b), 2(c), 2 (d), 5(a), 8)

### March

Mon 3 Assignment #13:(Do practice problems from Handout) Review for the second exam

Wed 5 **SECOND EXAM--100 points**

### **UNIT III Predicate Logic: Symbolizing and Translating**

Fri 7 Read EDI Chap. 5 Predicate Logic I: Syntax and Semantics pp. 200-215. Assignment #14:(Ex. 5.3 Parts A, B, and C)

#### **Spring Break Saturday March 8--Sunday March 16**

Mon 17 Read EDI Chap. 5 pp. 216-227 Assignment #15:(Ex. 5.4 Part I #1, #2, #3, #4 and Part II evens only using both interpretations pp. 226-227)

Wed 19 Read EDI Chap. 5 pp. 227-236 Assignment #16:(Ex. 5.5 Part A p. 236)

Fri 21 **Good Friday Holiday--no classes**

Mon 24 Read EDI Chap. 5 pp. 239-253 Assignment #17:(Ex. 5.6 Part A evens only and Part B evens)

Wed 26 Read EDI Chap. 5 pp. 253-256 and a handout on the Traditional Interpretation of the Square of Opposition. Assignment #18:(Ex. 5.6 Parts C and D)

Fri 28 **THIRD QUIZ—50 points**

Mon 31 Read EDI Chap. 5 pp. 259-261 Assignment #19:(Ex. 5.7 Part A even numbered items only)

#### **April**

Wed 2 Read Jeffrey FL Chap. 3 Generality pp. 35-48 Assignment #20:( pp. 48-49 #2, #3, #5, and #6)

Fri 4 Review for Third Exam

Mon 7 **THIRD EXAM--100 POINTS**

### **UNIT IV Proofs in Predicate Logic—THE ASSIGNMENT SCHEDULE FOR UNIT IV IS STILL UNDER CONSTRUCTION**

Wed 9

Fri 11 Jeffrey FL Chap. 4 Multiple Generality pp. 59-74

Mon 14 Assignment #24:(Do Natural Deduction problems in predicate logic from a handout.)

Wed 16 Assignment #25:(Do more Natural Deduction problems in predicate logic from a handout.)

Fri 18

Mon 21

Wed 23 **FOURTH QUIZ—50 points**

Fri 25 Read Jeffrey FL Chap. 5 Identity pp. 75-83

Mon 28. Assignment #26:(A handout of problems involving the identity relation.)

Wed 30 Read Jeffrey FL Chap. 6 Functions pp. 85-97

#### **May**

Fri 2 Read Jeffrey FL Chap. 7 Uncomputability pp. 99-112 and FL Chap. 8 Undecidability pp. 113-123

Mon 5 Review for Final Exam Assignment #28:(a handout of problems from the whole semester)

Wed 7 **Last day of class.** Review for Final Exam. Assignment #29:(a handout of problems from the whole semester)

**Thursday 8 Last Day to drop a class.**

**Fri 9 Final Exam Study Day. No classes.**

**Mon 12 2:00pm-4:00 pm FINAL EXAM--100 points**