Syllabus: Phil 007
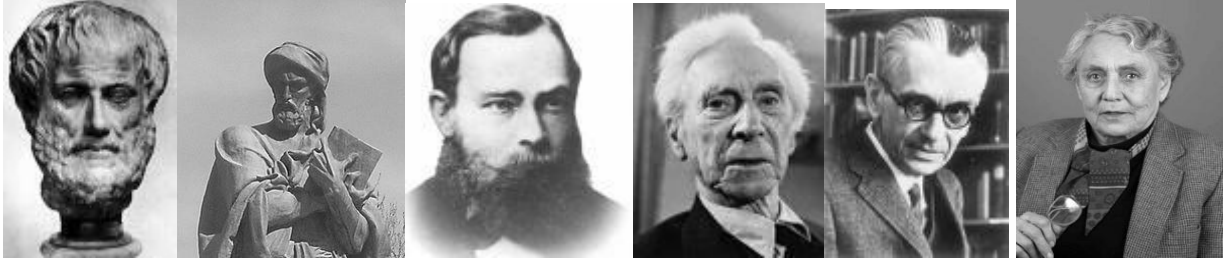**Deductive Logic**
De Anza College
Fall Quarter, 2013
Instructor: Toño Ramirez
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Office Location: Forum Building, Room 2D
Office Hours: M-W 6:30-7:30 AM and 12:30-1:00 PM, or by appointment

Course Description

While philosophy as a broad discipline is concerned with a wide variety of topics, this course will restrict its focus to examining formal techniques for evaluating deductive arguments. These techniques are useful in any arena where sound reasoning is required, and have particularly important applications in fields such as analytic philosophy, computer design, and mathematics.

Student Learning Outcomes

Students who successfully engage course materials will be able to:

- Correctly use technical terms such as *valid*, *sound*, *consistent*, *contingent*, *theorem*, *tautology,* and *counterexample.*
- Translate statements from a natural language to a symbolic language (and vice-versa).
- Construct and evaluate proofs in a system of propositional logic.
- Use truth tables to evaluate sequents in this system.
- Construct and evaluate proofs in a system of predicate logic.

Course Expectations and Requirements

- Students who are considering dropping the course for *any* reasons are encouraged to meet with the instructor first—I'm happy to do what I can to help you succeed in this class!
- Students may miss a total of *four* class meetings without penalty during the term. Students who maintain an attendance record within this boundary will be awarded a 10% 'buffer' in calculating their final grade. A fifth absence will result in the loss of this buffer.
  - Note that this means it is entirely possible to earn a high grade in the course even with a very low attendance record. The decision to attend is entirely up to you. I encourage you, however, to keep the following in mind:
    - The textbook is *not* designed for independent study. Course lectures will offer important supplementary information that can be helpful in understanding the content presented in the text.
    - As explained below, weekly quizzes may not be made up. If you miss class on the day of a quiz, you will receive a score of zero for that quiz.

- Students are *not* required to provide a reason for absence (with the exception of the midterm and final exam), nor are apologies necessary. I assume that absences will only occur under legitimate circumstances.
- Students who miss a class meeting are responsible for obtaining any information or assignments they may have missed. Changes to the syllabus will be posted to the course website.
- Attendance will be taken on a daily basis. It is the student's responsibility to ensure that her/his name has been recorded accurately on daily attendance sheets.
- Students are expected to come to class *on time*. Three late arrivals will be considered equivalent to one absence on the attendance record.
- Cell phones must be turned off during class. Students who need to leave a phone on for emergency purposes should let me know at the beginning of the class session. No other electronic devices may be used during class without first consulting me.

Student Assessment:

The final grade will be awarded according to the following point system:

With 10% attendance buffer

Criterion	Value
Weekly Quizzes (averaged)	15%
Midterm Exam	25%
Final Exam	35%
Homework Assignments	15%
Attendance Buffer	10%

Without 10% attendance buffer

Criterion	Value
Weekly Quizzes (averaged)	20%
Midterm Exam	25%
Final Exam	35%
Homework Assignments	20%

Letter Grade	Percentage Range
A+	96.5-100
A	92.5-96.4
A-	89.5-92.4
B+	86.5-89.4
B	82.5-86.4
B-	79.5-82.4
C+	76.5-79.4
C	72.5-76.4
D+	69.5-72.4
D	66.5-69.4
D-	62.5-66.4
F	0-62.4

- Homework submission:

  o Homework will not be collected every day, but it is expected that all students will complete (or attempt) all assignments prior to the beginning of class on the date assigned.

  o Homework will be kept in a notebook/binder **apart** from class notes. HW notebooks will be collected periodically and checked for completion. All assignments should be clearly labeled and identified in the notebook. It is expected that notebooks will contain all assignments up to the date of completion.

  o Failure to provide an-up-to-date journal available on request will be handled as follows:

    - First instance: Student will be given an opportunity to provide the up-to-date journal at the beginning of the next class meeting, with no penalty
    - Second instance: Student will lose 5 percentage points allotted to "HW" in the calculation of the final grade
    - Third instance: Student will lose an additional 5 percentage points allotted to "HW" in the calculation of the final grade
    - Fourth instance: Student will be dropped from the course

  o If a student is absent on a date when his/her journal is requested, the journal will be due for submission upon the student's return to class, subject to the policy above
- Weekly quizzes will be held on the last day of each week, with the exception of week 6 and week 12.
- Weekly quizzes **may not** be made up.
- Your lowest quiz score will be dropped from your final score total.
- It is expected that students will engage one another's ideas in discussion, and that this will be done in a respectful manner. Neither disparaging remarks nor personal attacks will be tolerated in any way.
- Class discussions will frequently feature small-group work. It is expected that students will participate actively in these groups.
- The mid-term and final exams **may only be made up in the event of a legitimate emergency absence**. If you know in advance that you will be unable to attend one of these exams, contact me as soon as possible—I will do what I can to accommodate you.
- Academic honesty is imperative in all written work. Plagiarism of any kind is grounds for a failing grade in the course, and will be reported to the Dean of Academics. Students who are unsure about specific standards for academic honesty should consult with me. As a general guideline, any of the following will be considered plagiarism:
  o Copying of *any* answers on *any* quiz or exam
  o Submission of *any* written materials taken from an outside source that have not been cited
  o The use of *any* electronic devices in class that have not been previously approved by the instructor

Texts (available at bookstore)

REQUIRED: Allen, C. and Hand, M. *Logic Primer (2nd ed.)*. MIT Press, 2010

OPTIONAL: Pospesel, H. *Introduction to Logic: Propositional Logic (Revised 3rd ed.)* Prentice Hall, 2000.
            Pospesel, H. *Introduction to Logic: Predicatel Logic (2ndrd ed.)* Prentice Hall, 2003.

A note about these books: The Allen and Hand text will be our primary source of readings and exercises for the quarter. It was selected for primarily for its concision, but it has the additional benefits of a very low cost relative to other logic texts, as well as highly useful free online supplementary resources. As you will quickly see, this book is *not* intended for self-study. Rather, it is designed to be supplemented by in-class explanations of key concepts. It is certainly *possible* to learn logic using this book alone, but I wouldn't recommend it (thus the attendance policies for the course). I will provide extensive notes to supplement the book, for those who learn best from written materials.

The Pospesel texts offer an expanded description of the content in the Allen and Hand book. They are not required, and I will not typically refer to them explicitly in class discussions. I have offered them, however, for those students who learn best from written explanations. If you learn best in this way, Pospesel offers excellent explanations of all of the topics we will cover in this course.

If the bookstore is out of copies, I recommend searching online vendors such as www.amazon.com or www.half.com. Used copies of the text can be found at these sites for reasonable prices.

I will place copies of these texts on reserve at the De Anza library. Students who are unable to secure a copy of the text in the first week can find a version of our first few readings available here. A password for the file will be given to you in class.

Course Website

Additional course readings will be handed out in class, or made available via the course website:

http://deanza.edu/faculty/ramireztono/phil07/index.html

The website will also feature links to course lecture materials, a regularly updated grade tracker, and important course announcements. I recommend that you check the course website at least once a week.

The following tips were adopted from a list written by Dr. Robin Smith of Texas A&M University. Amendments have been made as appropriate for our course.

How to Do Well in This Course

Learning logic is like learning a foreign language or learning mathematics: it involves *learning how to do something*, not just learning facts, and what you learn is *cumulative*. Here are three keys to success in this course:

1. **Keep up.** Do the readings and exercises as they are assigned in the schedule. The material in this course is not friendly to last-minute cramming. Don't let yourself get behind.

2. **Practice. Lots.** To succeed in this course, you have to learn how to *do* things, not merely learn some facts. That takes practice, repetition, doing the same thing over and over, repetition, practice, doing lots of exercises, practice, and doing things over and over. You have to practice. Repetition is essential. It gets easier if you do it many times. Do lots of exercises. One valuable source of help here is our online support for this course, which never sleeps, is always ready to help you practice, and will give you instant feedback on how you're doing.

3. **If you need help, ask for it. Immediately.** There are several sources of help built into this course. Class meetings will feature opportunities for you to ask questions about what you don't understand. Your instructor has office hours available for you. Optional tutoring will be made

available to you (information TBA). We have [online help](). However, these are only going to be useful to you **if you ask**.

A final note: It is my firm belief that *everyone* can excel in this course. I expect, however, that many students will find the material very challenging. I am very happy to help you to succeed, but to do this I need you to let me know when help is needed! I encourage you to ask questions, visit my office, and make use of the many resources available to you for this class.

Course Assignment Schedule

(n.b.: The schedule is subject to change at my discretion—changes will be posted to the course website)

- 9/23
  - Introduction to course
- 9/24
  - Read pgs. 1-2
- 9/25
  - HW: Exercise 1.1
- 9/26
  - Read pgs. 3-4
  - **1.1 Quiz**
  -
- 9/30
  - Read pgs. 6-7
- 10/1
  - HW: Exercise 1.2.1: ix-xv
- 10/2
  - Read p. 9
  - HW: Exercise 1.2.3: vi-x
- 10/3
  - Read pgs. 10-15
  - **1.2 Quiz**

- 10/7
  - HW: Exercise 1.3: 10-13, 15, 17
- 10/8
  - HW: Exercise 1.3: 21-25
- 10/9
  - NO CLASS MEETING
- 10/10
  - NO CLASS MEETING

- 10/14
  - No HW
- 10/15
  - **1.3 Quiz**
- 10/16
  - Read p. 39-45
  - HW: Exercise 2.1: iv-vii
- 10/17
  - NO CLASS MEETING

- 10/21
  - Read p. 46-49
  - HW: Exercise 2.2: v-vii (proofs NOT required)
- 10/22
  - Read p. 49-51
  - HW: Exercise 2.4.2: v-ix (proofs NOT required)
- 10/23
  - [HW]() assignment: Equivalence Read: [http://www.ditext.com/gettier/gettier.html]()
- 10/24
  - **Ch 2 Quiz**
  - Read pgs. 17-22

- 10/28
  - Read pgs. 19-25
- 10/29
  - [HW]() assignment: Basic proof rules #1
- 10/30
  - [HW]() assignment: Basic proof rules #2
  - HW: Exercise 1.4.2: S3-S4
  - **Midterm Review**
- 10/31
  - **MIDTERM EXAM**

- 11/4
  - HW: Exercise 1.4.2: S5-S8
- 11/5
  - HW: Exercise 1.5.1: S13, S 15, S 16, S17
- 11/6
  - [HW]() assignment: Arrow Introduction

-      ▪ [HW](#) assignment: RAA
- 11/7   ▪ HW: S19, S23, S26

- 11/11   ▪ NO CLASS MEETING (Veterans Day)
- 11/12   ▪ HW: S27, S29, S39, S54
- 11/13   ▪ HW: Exercise 1.6.1: T7, T9 (primitive rules only)
  - ▪ HW: Exercise 1.5.4: S66 (primitive rules only, proof in both directions)
- 11/14   ▪ Read 57-62
  - ▪ Submit [Propositional Logic Proofs Take-Home Quiz](#)

- 11/18   ▪ HW: Exercise 3.1.1: vii-xii
  - ▪ Read 67-70
- 11/19   ▪ Review
- 11/20   ▪ HW: Exercise 3.2: 1-8
- 11/21   ▪ HW: Exercise 3.2: 33-34, 39-41

- 11/25   ▪ **3.1 and 3.2 Quiz**
  - ▪ Read 77-85
- 11/26   ▪ [HW](#) Assignment: Universal elimination and existential introduction
- 11/27   ▪ [Optional additional proof practice](#)
  - ▪ HW: Exercise 3.3.2: S89, S92
- 11/28   ▪ NO CLASS MEETING (Thanksgiving)

- 12/2   ▪ [HW](#) Assignment: Existential elimination
  - ▪ HW: Exercise 3.3.2: S88
- 12/3   ▪ HW: Exercise 3.3.2: S90, S103 (hint: try a reductio)
- 12/4   ▪ HW: Exercise 3.3.2: S117, S91, S105
- 12/5   ▪ **3.3 Take-Home Quiz Due**
  - ▪ **Review for final exam**
  - ▪ **Review Packet Available Here**

- 12/9   ▪ **Review for final exam**
- 12/10   ▪ **FINAL EXAM: 11:30 AM – 1:30 PM**
- 12/11   ▪
- 12/12   ▪
- 12/13   ▪