Philosophy 5135: Graduate Logic
Syllabus

PHI 5135; Section 5000
Spring 2026
Tuesdays 9:35pm - 12:35pm
Griffin-Floyd 200

Instructor Information

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Course Description

This course is designed to familiarize graduate students with some important metalogical results about sentential and predicate calculi. To that end, we will introduce a derivation system (modeled on the one developed by Kalish, Montague, and Marr), learn how to do derivations in that system, and then prove that the system is both sound and complete. We will do this for both sentential and first-order predicate logic. Time permitting, we will also look at some related metalogical and mathematical results, including the Löwenheim-Skolem theorem and Cantor's theorem.

Learning Objectives

At the end of this course, students will be able to:

- Parse and symbolize sentences in our symbolic languages
- Perform derivations in sentential and predicate logic using the KMM derivation system
- Test for validity and invalidity using truth tables and the method of models
- Be able to construct proofs using mathematical induction
- Explain how the soundness and completeness proofs work
- Explain the Löwenheim-Skolem theorem and why it holds
- Explain Cantor's theorem and why it holds

Academic Honesty

UF students are bound by The Honor Pledge, which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: 'On my honor, I have neither given nor received unauthorized aid in doing this assignment.'"

The Honor Code (https://policy.ufl.edu/regulation/4-040/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor. **Plagiarism on any assignment will automatically result in a grade of "E" for the course.** Plagiarism is defined in the

University of Florida's Student Honor Code as follows: "A student shall not represent as the student's own work all or any portion of the work of another. Plagiarism includes (but is not limited to): a. Quoting oral or written materials, whether published or unpublished, without proper attribution. b. Submitting a document or assignment which in whole or in part is identical or substantially identical to a document or assignment not authored by the student." Students found guilty of academic misconduct will be prosecuted in accordance with the procedures specified in the UF honesty policy.

Use of AI

This course includes several take-home homework assignments and exams. In many cases, AI will not be helpful for these given the idiosyncrasies of our logical language and derivation system. Nevertheless, use of AI in the preparation of your answers is strictly prohibited. If I catch you using AI on an assignment, you will receive a 0 on that assignment.

Canvas e-Learning Environment

This course is supplemented by online content in the e-Learning environment known as "Canvas." To login to the e-Learning site for this course, go to https://lss.at.ufl.edu/, click the **e-Learning in Canvas** button, and on the next page enter your Gatorlink username and password. You can then access the course e-Learning environment by selecting PHI 5135 from the **Courses** pull-down menu at the top of the page. If you encounter any difficulties logging in or accessing any of the course content, contact the UF Computing Help Desk at (352) 392-4537. Please do not contact the course instructor regarding computer issues.

Online Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

Accommodation for Students with Disabilities

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Counseling and Wellness Center:

http://www.counseling.ufl.edu/cwc/Default.aspx, 392-1575

University Police Department:

392-1111 or 9-1-1 for emergencies.

Course Texts

- Logic: Theory and Metatheory (PDF by Keith Simmons, provided on Canvas)

Course Requirements

Attendance/Participation: 5%
Homework Assignments: 45%
Midterm Exam: 25%
Final Exam: 25%

Participation

Respectful participation in class is expected of everyone. Since there are only a few of us, we should have time to make sure everyone understands everything and is on the same page. If you are confused or feel lost, please don't feel afraid to speak up and say so, whether that is in class or in office hours. Your grade depends on your participation and your performance on the assignments and exams, *not* on whether you understand everything the first time you encounter it. It is not expected that you will understand everything immediately in this course; you will have to work at it.

Homework Assignments

There will be intermittent homework assignments throughout the semester, derived from (but not entirely identical to) the Exercise Sets in the text. Because of the variegated nature of the course material, these assignments will be non-uniformly distributed, so there will be some periods with more assignments than others. They will be assigned at the beginning of the week (after class concludes on Tuesday), and will be due at the start of class the following week. They should be submitted on paper directly to me at the start of class. You may work together on homework assignments (indeed you are *encouraged* to do so), but you may not copy each others' work.

Midterm and Final Exams

The Midterm and Final Exams will have a take-home format. They will be assigned at the beginning of the week and will be due on the following Sunday at 11:59pm. This is intended to alleviate some of the stresses associated with taking an in-class exam. Unlike with the homework, you are not allowed to collaborate on the exams. They should be submitted on Canvas (scans or photos of written work are acceptable).

Grading

The following grade scale will be used to assign final letter grades for the course.

Grade Scale	Grade Value
100-93=A	A=4.0

92-90=A-	A-=3.67
89-87=B+	B+=3.33
86-83=B	B=3.00
82-80=B-	B-=2.67
79-77=C+	C+=2.33
76-73=C	C=2.00
72-70=C-	C-=1.67
69-67=D+	D+=1.33
66-63=D	D=1.00
62-60=D-	D-=0.67
59-0=E	E=0.00

Course Schedule

The following is a *tentative* schedule for the course. Any official changes to the schedule will be announced on Canvas, and the posted syllabus will be updated. Items listed for a given class meeting are to be read before that meeting (except for the first meeting).

January 13
- Chapter 1: Sentential Calculus, pp. 1-16

January 20
- Chapter 1: Sentential Calculus, pp. 17-29

January 27
- Chapter 1: Sentential Calculus, pp. 29-46

February 3
- Chapter 2: Soundness of the Sentential Calculus, pp. 47-56

February 10
- Chapter 3: Completeness of the Sentential Calculus, pp. 57-68

February 17
- Chapter 4: Monadic Predicate Calculus, pp. 69-82

February 24
- Chapter 4: Monadic Predicate Calculus, pp. 82-89

March 3
- Catch-Up Day

March 8: Midterm Exam due by 11:59pm (submit on Canvas)

March 10

- Chapter 5: Full Predicate Calculus, pp. 89-105

March 17

- No class (Spring Break)

March 24

- Chapter 5: Full Predicate Calculus, pp. 105-120

March 31

- Chapter 6: Soundness of the Predicate Calculus, pp. 121-144

April 7

- Chapter 7: Completeness of the Predicate Calculus, pp. 145-152

April 14

- Chapter 8: Lowenheim-Skolem Theorem, pp. 153-158

April 21

- Catch-Up Day/Course Wrap-Up

April 26: Final Exam due by 11:59pm (submit on Canvas)