

Phil 422: Advanced Logic

COURSE INFORMATION

Professor	Dr. Jesse Fitts
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Time & Place	
Website	Canvas
Office Hours	

COURSE DESCRIPTION AND GOALS

Our objectives this term will be to demonstrate mastery of basic concepts and methods in the meta-theory of first-order propositional, predicate, and modal logic, including expressive completeness, induction, soundness, and completeness. Understanding these proofs will be the major learning goal of the course. After these proofs, we will cover selected topics, focusing mostly on modal logic.

READINGS AND MATERIAL

A draft of a textbook that I'm writing with the chair of the department will be our text. It's available on Webcampus.

COURSE REQUIREMENTS

Your grade consists of quizzes and homework. The plan is for the homework to be somewhat like the quizzes. The grading on the homework will be less stringent than the quizzes.

Note: The quizzes will not be scheduled—they'll be "pop" quizzes.

Because of this, I won't take attendance.

Assignments and quizzes will be worth between 5 and 20 points apiece. For your final grade I simply add up your points and divide by total possible points. Grading shall be according to the standard numerical.

Any one homework or quiz isn't worth a large amount of points, but they do add up. This means that regular attendance is a must to do well in the course. If you can't make a class, try to let me know before hand, and we'll see about making up quizzes.

Periodically, I will total up your homework and quiz scores and let you know how you are standing.

SCHEDULE

I prefer to work at the pace of the class. Because of this, we'll use a Google calendar for our schedule that's linked on Webcampus. Homework due dates and readings will be on there. Even though, officially, the quizzes are unannounced, I'll often let you know when they'll be and on what. Be sure to check the calendar often. The following is an outline of the topics we'll cover for the course:

- Introduce the double turnstile.
- Expressive completeness.
- Inductive proofs.
- Introduce sentential logic (SL) two-sided tableau.
- Soundness, completeness, and compactness for tableau.
- Syntax and semantics (model theory) of predicate logic (PL). We'll spend a significant amount of time on model theory.
- Introduce PL two-sided tableau.

- Soundness, completeness, and compactness for tableau.
- Introduce modal logic.
- Semantics for sentential modal logic.
- Introduce two-sided tableau for sentential modal logic.
- Counterexamples in modal logic.
- Non-classical logic: truth-value gaps, paraconsistent logic, and super valuationism.

UNIVERSITY POLICIES

Academic Misconduct: Academic integrity is a legitimate concern for every member of the campus community; all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility and professionalism. By choosing to join the UNLV community, students accept the expectations of the Student Academic Misconduct Policy and are encouraged when faced with choices to always take the ethical path. Students enrolling in UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's function as an educational institution. An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another, from the Internet or any source, without proper citation of the sources. See the Student Academic Misconduct Policy (approved December 9, 2005) located at: <https://www.unlv.edu/studentconduct/student-conduct>.

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Religious Holidays Policy: Any student missing class quizzes, examinations, or any other class or lab work because of observance of religious holidays shall be given an opportunity during that semester to make up missed work. The make-up will apply to the religious holiday absence only. It shall be the responsibility of the student to notify the instructor within the first 14 calendar days of the course for fall and spring courses (excepting modular courses), or within the first 7 calendar days of the course for summer and modular courses, of his or her intention to participate in religious holidays which do not fall on state holidays or periods of class recess. For additional information, please visit: <http://catalog.unlv.edu/content.php?catoid=6&navoid=531>.

Library Resources: Students may consult with a librarian on research needs. For this class, the subject librarian is https://www.library.unlv.edu/contact/librarians_by_subject. UNLV Libraries provides resources to support students' access to information. Discovery, access, and use of information are vital skills for academic work and for successful post-college life. Access library resources and ask questions at <https://www.library.unlv.edu/>.

Tutoring and Coaching: The Academic Success Center (ASC) provides tutoring, academic success coaching and other academic assistance for all UNLV undergraduate students. For information regarding tutoring subjects, tutoring times, and other ASC programs and services, visit <http://www.unlv.edu/asc> or call 702-895-3177. The ASC building is located across from the Student Services Complex (SSC). Academic success coaching is located on the second floor of the SSC (ASC Coaching Spot). Drop-in tutoring is located on the second floor of the Lied Library and College of Engineering TEB second floor.

UNLV Writing Center: One-on-one or small group assistance with writing is available free of charge to UNLV students at the Writing Center, located in CDC-3-301. Although walk-in consultations are sometimes available, students with appointments will receive priority assistance. Appointments may be made in person or by calling 702-895-3908. The student's Rebel ID Card, a copy of the assignment (if possible), and two copies of any writing to be reviewed are requested for the consultation. More information can be found at: <http://writingcenter.unlv.edu/>.

Rebelmail: By policy, faculty and staff should e-mail students' Rebelmail accounts only. Rebelmail is UNLV's official e-mail system for students. It is one of the primary ways students receive official university communication such as information about deadlines, major campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the university. Students' e-mail prefixes are listed on class rosters. The suffix is always @unlv.nevada.edu. Emailing within WebCampus is acceptable.