

# PHIL 5312: SEMINAR IN LOGIC: MODAL LOGIC AND ITS APPLICATIONS

Spring 2023

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<b>Instructor:</b>	David Boylan	<b>Time:</b>	M 2-5
<b>Email:</b>	<a href="mailto:dboylan@ttu.edu">dboylan@ttu.edu</a>	<b>Place:</b>	Eng/Phil 264
<b>Office hours:</b>	T,R 12.30-2pm		

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**Course Description:** This will cover modal logic and its applications to various areas of philosophy. We will start by getting a basic grounding in modal propositional logic and modal predicate logic. We will then focus on two areas where modal logic has been widely used in philosophy: philosophy of language and formal epistemology.

**Required Texts:** You should buy a copy of Hughes and Cresswell's, *A New Introduction to Modal Logic*. We will also draw on Sider's *Logic for Philosophy*.

**Assessment:** There will be regular problem sets, consisting of both mathematical and philosophical questions. You will write a short five page paper and a 10–15 page final paper. You will also provide a commentary on another student's paper.

## Course Schedule

Schedule is subject to change.

- Week 1: Recap of Propositional Logic, Axiomatic Proofs, Basics of Modal Logic
  - Sider, ch.2
  - Hughes and Cresswell, ch.1.
- Week 2: Systems K, T and D
  - H&C, ch.2
- Week 3: Finishing K, T and D
  - H&C, ch.2
- Week 4: Systems S4, S5, Triv and Ver
  - H&C, ch.3
- Week 5: Modal Predicate Logic
  - Sider, ch.4
  - H & C, ch.13
- Week 6: MPL continued

- H & C, ch.15, 16,17

#### APPLICATIONS TO PHILOSOPHY OF LANGUAGE

- Week 7: Names and Descriptions
  - Kripke, *Naming and Necessity*, lectures 1, 2, 3
  - Rothschild, Presuppositions and Scope
- Week 8: Pragmatics
  - Stalnaker, “Assertion”, “Pragmatic Presuppositions”, “Common Ground”
- Week 9: Two Dimensional Semantics
  - Kaplan, selections from “Demonstratives”
  - Chalmers, “Propositions and Attitude Ascriptions: A Fregean Account”
- Week 10: Modals and Conditionals
  - Lewis, *Counterfactuals*, ch.1
  - Kratzer, “What ‘Must’ and ‘Can’ Can and Must Mean”
  - Kratzer, “Modality”

#### APPLICATIONS TO EPISTEMOLOGY

- Week 11: Basic Epistemic Logic and Closure
  - Caie, “Doxastic Logic” in *Open Handbook of Formal Epistemology*
  - Nozick, “Knowledge and Skepticism”
  - Kripke, “Nozick on Knowledge”
- Week 12: Luminosity and KK
  - Williamson, *Knowledge and Its Limits*, ch.s 4,5
  - Stalnaker, “Luminosity and the KK Principle”
  - Greco, “Could KK Be OK?”
- Week 13: S5 in Epistemic Logic
  - Williamson, *Knowledge and Its Limits*, ch.8
  - Williamson, “Improbable Knowing”
  - Horowitz, “Epistemic Akrasia”

## General course policies

**COVID-19.** TTU strongly recommends students adhere to CDC guidelines on COVID-19. These guidelines advise:

- Getting a COVID-19 vaccination;
- Wearing a mask in public indoor settings if you are in an area of substantial or high transmission *whether or not you have been vaccinated*;
- Social distancing.

COVID-19 vaccinations is available at student health services by appointment. A video debunking myths about COVID-19 can be found here: <https://www.ttu.edu/commitment/covid-19-vaccine/index.php>

If you test positive for COVID-19, you are *required* to self-isolate. If you are unvaccinated and are exposed to someone who has tested positive, you are *required* to quarantine (unless you can prove a COVID-19 diagnosis and recovery in the last three months). If you are vaccinated and exposed to someone who has tested positive, I am happy to excuse you from class in order to quarantine.

**Academic integrity:** Cheating and plagiarism are, of course, prohibited in this class. They will be taken particularly seriously, and any cases that may arise will be treated in a manner consistent with University policy. These two violations of academic integrity are each defined in the section of the Texas Tech online official publications titled “Academic Integrity”. ‘Plagiarism’ includes, but is not limited to, “the appropriation of, buying, receiving as a gift, or obtaining by any means material that is attributable in whole or in part to another source, including words, ideas, illustrations, structure, computer code, other expression and media, and presenting that material as one’s own academic work being offered for credit.” (<http://www.depts.ttu.edu/studentconduct/academicinteg.php>)

You can find excellent explanations of what specifically constitutes plagiarism as opposed to proper citation, and also tutorials on how to avoid plagiarism at the following websites:

- <http://www.dartmouth.edu/~writing/sources/>
- <http://www.indiana.edu/~wts/pamphlets/plagiarism.shtml>

If, at any time, you are at all unclear about what counts as plagiarism, or about whether you are properly citing sources in any of your written work, **ask me**.

Academic integrity is taking responsibility for one’s own class and/or course work, being individually accountable, and demonstrating intellectual honesty and ethical behavior. Academic integrity is a personal choice to abide by the standards of intellectual honesty and responsibility. Because education is a shared effort to achieve learning through the exchange of ideas, students, faculty, and staff have the collective responsibility to build mutual trust and respect. Ethical behavior and independent thought are essential for the highest level of academic achievement, which then must be measured. Academic achievement includes scholarship, teaching, and learning, all of which are shared endeavors. Grades are a device used to quantify the successful accumulation of knowledge through learning. Adhering to the standards of academic integrity ensures grades are earned honestly. Academic integrity is the foundation upon which students, faculty, and staff build their educational and professional careers.

**Accommodations:** Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make necessary arrangements. Students must present appropriate verification from Student Disability Services during the

instructor's office hours. Please note that instructors are not allowed to provide classroom accommodation to a student until appropriate verification from Student Disability Services has been provided. For additional information, please contact Student Disability Services office in 335 West Hall or call 806-742-2405.

**Religious holy days:** "Religious holy day" means a holy day observed by a religion whose places of worship are exempt from property taxation under Texas Tax Code 11.20. A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence. A student who is excused under section 2 may not be penalized for the absence; however, the instructor may respond appropriately if the student fails to complete the assignment satisfactorily.

**Title IX Violations:** Texas Tech University is committed to providing and strengthening an educational, working, and living environment where students, faculty, staff, and visitors are free from gender and/or sex discrimination of any kind. Sexual assault, discrimination, harassment, and other Title IX violations are not tolerated by the University. Report any incidents to the Office for Student Rights & Resolution, (806)-742-SAFE (7233) or file a report online at [titleix.ttu.edu/students](https://www.depts.ttu.edu/titleix). Faculty and staff members at TTU are committed to connecting you to resources on campus. Some of these available resources are: TTU Student Counseling Center, 806-742-3674, <https://www.depts.ttu.edu/scc/> (Provides confidential support on campus.) TTU 24-hour Crisis Helpline, 806-742-5555, (Assists students who are experiencing a mental health or interpersonal violence crisis. If you call the helpline, you will speak with a mental health counselor.) Voice of Hope Lubbock Rape Crisis Center, 806-763-7273, [voiceofhopelubbock.org](http://voiceofhopelubbock.org) (24-hour hotline that provides support for survivors of sexual violence.) The Risk, Intervention, Safety and Education (RISE) Office, 806-742-2110, <https://www.depts.ttu.edu/rise/> (Provides a range of resources and support options focused on prevention education and student wellness.) Texas Tech Police Department, 806-742-3931, <http://www.depts.ttu.edu/ttpd/> (To report criminal activity that occurs on or near Texas Tech campus.)

**Civility in the Classroom:** Texas Tech University is a community of faculty, students, and staff that enjoys an expectation of cooperation, professionalism, and civility during the conduct of all forms of university business, including the conduct of student–student and student–faculty interactions in and out of the classroom. Further, the classroom is a setting in which an exchange of ideas and creative thinking should be encouraged and where intellectual growth and development are fostered. Students who disrupt this classroom mission by rude, sarcastic, threatening, abusive or obscene language and/or behavior will be subject to appropriate sanctions according to university policy. Likewise, faculty members are expected to maintain the highest standards of professionalism in all interactions with all constituents of the university ([www.depts.ttu.edu/ethics/matadorchallenge/ethicalprinciples.php](http://www.depts.ttu.edu/ethics/matadorchallenge/ethicalprinciples.php)).

**LGBTQIA Support:** I identify as an ally to the lesbian, gay, bisexual, transgender, queer, intersex, and asexual (LGBTQIA) community, and I am available to listen and support you in an affirming manner. I can assist in connecting you with resources on campus to address problems you may face pertaining to sexual orientation and/or gender identity that could interfere with your success at Texas Tech. Please note that additional resources are available through the Office of LGBTQIA within the Center for Campus Life, Student Union Building Room 201, [www.lgbtqia.ttu.edu](http://www.lgbtqia.ttu.edu), 806.742.5433.