

PHIL 2303: Introduction to Logic

Fall 2017 Syllabus

Monday & Wednesday, 5:30-6:45pm - FN 2.202

Professor Matthew J. Brown

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Office Location and Hours: JO 4.120, MW 4-5pm

Course Website: Visit for updates

<http://classes.matthewjbrown.net/logic/>

Appointments: <http://doodle.com/mattbrown>

Contact Policy I will be available to speak to you for several minutes before and after class each week. I will be fully engaged during class, with plenty of time for questions and discussion. I will be prompt to office hours each week, and will announce any cancellations well in advance. I will answer my phone during office hours unless I am with another student. I will happily make appointments before or after class, or by the website above. Generally, I will not respond to emails or phone messages. The only reason to email me would be: (1) to inform me of a genuine emergency situation *before* or *during* an exam that will prevent you from being at the exam, or (2) to remind me to do something I promised to do, such as post bonus readings.

Course Description

Formal logic is the formal study of reasoning, inference, and proof. This course will focus on deductive logic, including formal analysis of statements and arguments, sentential and quantified logics, formal semantics and models, and logical proofs. At the end of the course, we will also briefly examine the logic of statistical inference and the logic of scientific reasoning.

General Core Area 020 Mathematics

Courses in this category focus on quantitative literacy in logic, patterns, and relationships. Courses involve the understanding of key mathematical concepts and the application of appropriate quantitative tools to everyday experience.

Core Curriculum Objectives:

Critical Thinking to include creative thinking, innovation, inquiry, and analysis, evaluation, and synthesis of information

Communication to include effective development, interpretation, and expression of ideas through written, oral, and visual communication

Empirical and Quantitative Skills to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions

Learning Outcomes

Upon successful completion of this course, students will:

1. Determine the logical structure of English arguments by identifying premises and conclusions.
2. Understand basic concepts in logic, such as truth functionality, validity, soundness, counter-examples, tautology, self-contradiction, logical equivalence, logical contradictoriness, and logical consistency.
3. Translate English statements into Sentential Logic (propositional notation).
4. Translate English statements into Quantified Logic (predicate notation)
5. Determine the validity of symbolic logical arguments using (a) truth tables, (b) models, and (c) natural deduction.

Textbook

P.D. Magnus, *forall x: An Introduction to Formal Logic* (Order) (Download)

Course and Instructor Policies

Classroom expectations

You are expected to have **read the assignments before class**, and it would be to your benefit to also read them again after class. You are expected to **bring a copy of assigned readings** for each day's class, and have them available to refer to. You are expected to **listen respectfully** to the professor and your fellow students, and **participate** in class discussions and activities.

Clear failure to abide by these expectations will result in you being asked to leave the classroom and being counted absent for the day.

Late Work, Make-Up, and Completion

No late work or make-up exams will be allowed without consent of the professor *prior* to the due/exam date, except in situations where University policy requires it, or in case of truly dire circumstances, where evidence can be provided.

What to Call Me

I prefer to be called "Matt," "Matthew," "Professor Brown," or "Dr. Brown." My preferred pronouns are he/him/his.

Additional Policies

<http://classes.matthewjbrown.net/course-policies>

<http://go.utdallas.edu/syllabus-policies>

Schedule of Readings and Assignments

Changes may be made and will be announced in class and reflected on the course website.

- M 8/21** Welcome & Introduction
W 8/23 No Class - Office Hours Cancelled
M 8/28 Basic Concepts in Logic (Ch 1)
Practice Exercises 1.A-D
W 8/30 Sentential Logic (Ch 2.1-2.2)
Practice Exercises 2.A-C
M 9/4 Labor Day Holiday, No Class
Office Hours Cancelled
W 9/6 Sentential Logic (2.3-2.4)
Practice Exercises 2.D-F
M 9/11 Sentential Logic Continued
Practice Exercises 2.G-H
W 9/13 Truth Tables (Ch 3)
Practice Exercises 3.A-F
M 9/18 Review
W 9/20 FIRST EXAM
M 9/25 Quantified Logic (4.1-4.4)
Practice Exercises 4.A-B
W 9/27 Quantified Logic Continued
Practice Exercises 4.C-D
M 10/2 Quantified Logic Continued
Practice Exercises 4.E-G
W 10/4 Quantified Logic (4.5)
Practice Exercises 4.H-I
M 10/9 Quantified Logic (4.6)
Practice Exercises 4.J-L
W 10/11 Review
M 10/16 SECOND EXAM
W 10/18 Formal Semantics (5.1-5.2)
Practice Exercises 5.A-C
M 10/23 Models (5.3-5.4)
Practice Exercises 5.D-G
W 10/25 Models (5.5)
Practice Exercises 5.H-J
M 10/30 Review
W 11/1 THIRD EXAM
M 11/6 Proofs (6.1)
Practice Exercises 6.A
W 11/8 Derived Rules, Replacement (6.2-6.3)
Practice Exercises 6.B-C
M 11/13 Proof strategy (6.6-6.7)
Practice Exercises 6.D-E
W 11/15 Continued
Practice Exercises 6.F-G
M 11/20-W 11/22 Fall Break, No Class
M 11/27 Proofs in Quantified Logic (6.4)
Practice Exercises 6.H-J
W 11/29 Continued
Practice Exercises 6.K-M
M 12/4 Proofs & Semantics (6.8-6.9)
Practice Exercises 6.N-R
W 12/6 Final Review
Practice Exercises S-U

Grades and Assignments

Assignment Types

1. Practice Exercises (61 Parts)
2. Midterm Exams
3. Final Exam
4. Engagement Points
 - a. Participation (1-3 points)
 - b. Logic Puzzles (2 points)
 - c. Textbook Corrections (1 point)
 - d. Complete 6 extra Practice Exercise Parts (1 point)

Grading Policy

Grades will be determined as follows:

- A:** Satisfactory Grade on all 3 Midterm Exams
Satisfactory Grade on all parts of Final Exam
Completion of 50 Practice Exercise Parts
Assures satisfactory completion of all Learning Outcomes
- B:** Satisfactory Grade on First and Second Midterm Exam
Satisfactory Grade on Parts 1-2 of Final Exam
Completion of 40 Practice Exercise Parts
Assures satisfactory completion of Outcomes 1, 2, 3, 4, 5a, 5b
- C:** Satisfactory Grade on First Midterm Exam
Satisfactory Grade on Part 1 of Final Exam
Completion of 30 Practice Exercise Parts
Assures satisfactory completion of Outcomes 1, 2, 3, 5a
- D:** 50% or Better on all 3 Midterm Exams
50% or Better on all parts of Final Exam
Completion of 20 Practice Exercise Parts
Poor performance on all Learning Outcomes
- F:** Failure to satisfy the criteria for grades A-D.
- “Satisfactory” is 85% (or B-level) correctness.
 - “Completion” of Practice Exercises means reasonable effort
 - Add **plus (+)** to your base grade if you earn at least 6 engagement points.
 - Add a **minus (-)** to your base grade if $x > 3$, where $x = A + (T + M)/2$
 - A: Absences
 - T: Tardies (more than 5 minutes late)
 - M: Missed Practice Exercise Parts for your grade level.
 - If you have a (+) and a (-) they cancel out. If a (-) cancels your (+), you can still gain another (+), and vice versa.
 - During each midterm exam period, you will have the opportunity to take the midterm or retake the previous midterm exam(s). During the final exam period, you will have the opportunity to take the final or retake any of the midterms.