INTRODUCTION TO LOGIC

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1 Preliminaries

Sending me a message online (by email or through Canvas) is the best way to reach me, and I will usually respond within 24 hours. If you would like a more immediate response, you can try calling or sending a text message to 267-416-0292. But don't leave a voicemail. I won't get it.

Meetings by appointment. (Webex, College Park Bldg., or George Hall)

2 Mississippi State University Syllabus

The Mississippi State University Syllabus contains all policies and procedures that are applicable to every course on campus and online. The policies in the University Syllabus describe the official policies of the University and will take precedence over those found elsewhere. It is the student's responsibility to read and be familiar with every policy. The University Syllabus may be accessed at any time on the Provost website under Faculty and Student Resources: provost.msstate.edu/faculty-student-resources/university-syllabus.

3 Textbook & Software

The textbook for this course is *forall x: the Mississippi State edition*. This textbook is required, and it is available in the Bulldog Bundle. If you opted out of the Bulldog Bundle, you can purchase it from Barnes and Noble or order it online. (There is information for ordering it online in Canvas.) After test 1, we will use the free online logic software *Carnap* (http://carnap.io/). A link that you will use to set up an account in Carnap will be provided.

4 Course Description

This course is an introduction to formal logic. The focus of the course is learning a formal language and then using this language to represent, explain, and evaluate certain kinds of reasoning. There are several reasons for such a course. One is that it is an important sub-field

of philosophy that is worth studying in its own right. It also overlaps with mathematics and computer science, and it is an important part of those disciplines. (In fact, it is fundamental to computer science.) It is also applicable to any field where arguments and reasoning processes are analyzed and evaluated. But, beyond it's direct applications, learning logic is an important part of a complete education. Amanda Ripley makes the point plainly in *The Smartest Kids in the World, and How They Got That Way*. Explaining the value of mastering "the language of logic," she writes,

> It is a disciplined, organized way of thinking. There is a right answer; there are rules that must be followed. More than any other subject, [it] is rigor distilled. Mastering the language of logic helps to embed higher-order habits in [our] minds: the ability to reason, for example, to detect patterns and to make informed guesses. Those kinds of skills have rising value in a world in which information is cheap and messy. (p.70)

While formal logic is a part of philosophy, you will also find that it looks somewhat like math (and, as mentioned above, in some respects, it overlaps with math). As with mathematics, in formal logic, we apply rules and use symbolic expressions—for example, $P \vee Q \vdash \neg P \rightarrow Q$. This "code" and the manipulation of these symbolic expressions follows English rather closely, however, and so it is not as difficult to grasp as you might initially think. We use the symbols because they make the relevant characteristics of the sentences more obvious and manageable. This, in turn, makes investigating the logical properties of the sentences much easier than it would be if we just used English.

4.1 Responsibilities

If you are having trouble with any part of this course, please contact me right away. The course is designed to make working through the material and learning it a straightforward process. But, since this is an online course, you are responsible for the following.

1. Making time each week to do the work for the course.
2. Using the textbook and videos to complete the assignments.
3. Determining if and when you need to contact me with questions.

Again, don't hesitate to contact me. It's what I'm here for, and I don't mind answering questions.

5 Learning Objectives

After the successful completion of this course, students will be able to identify arguments, distinguish valid and invalid arguments, translate English sentences into sentences in a formal

language (TFL), construct truth tables, evaluate arguments using truth tables, and construct proofs in a formal language (TFL).

6 Student Honor Code & Academic Misconduct

Mississippi State has an approved Honor Code that applies to all students. The code is as follows:

> As a Mississippi State University student, I will conduct myself with honor and integrity at all times. I will not lie, cheat, or steal, nor will I accept the actions of those who do.

Upon accepting admission to Mississippi State University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor Code. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the MSU community from the requirements or the processes of the Honor Code. For additional information, please visit: http://honorcode.msstate.edu/policy and http://students.msstate.edu/studentconduct/.

To be clear, students who cheat in any way will be penalized. Cheating includes giving as well as receiving help when such help is not explicitly allowed.

Plagiarism and using AI (i.e., a generative AI tool) are both types of cheating. The best way to avoid anything that might be academic misconduct is to put yourself in a position where you don't need to cheat or plagiarize. Don't get behind, and if there are things that you don't understand, give yourself time to figure them out or schedule a meeting with me.

Please ask me if you have any further questions about what constitutes academic misconduct. I am happy to answer any questions about what is and is not allowed. But ask me before you do something questionable.

7 Coursework & Grading

7.1 Grading

Letter grades will be assigned using the standard Mississippi State scale (an A is 90.0 – 100 percent, a B is 80.0 – 89.9 percent, a C is 70.0 – 79.9 percent, etc.). The grades will be set based on this coursework and these percentages:

quizzes: 30 percent
homework assignments: 30 percent
four tests: 40 percent

7.2 Coursework

All of the work for this course is open book and notes (your own notes, not other people's notes). **Other than consulting with the instructor, you are required to do all quizzes, homework assignments, and tests alone and without help.**

Because everything in this course builds what you have done previously, you have to do every assignment. (That is, you have to do every quiz, practice quiz, homework assignment, and test; you don't, however, have to do all of the practice problems in Carnap). Assignments can be completed after their due dates, but there are penalties for completing them late.

1. For quizzes and tests in Canvas, 3 percent will be deducted from an assignment's grade for each day that it is late.
2. For homework assignments in Carnap, late work will receive a 20 percent penalty (that is just a penalty for being late, not a per day penalty).

Each student's lowest quiz grade and lowest homework grade will be dropped. There will not be any extra credit at the end of the course, and so you should do as well as you can throughout the term.

7.3 Honorlock

You will use the proctoring software Honorlock for the tests. There is information about using it on Canvas.

8 Schedule

See the Google calendar in Canvas for the exact schedule.

Week 1	*forall x*, chapters 1 & 2: introduction to arguments
	forall x, chapter 3: other concepts of logic
	forall x, chapters 4 - 6: introduction to truth functional logic
	Test 1 is due by Sunday, July 13.
Week 2	*forall x*, chapters 7 - 10: truth tables
	Test 2 is due by Friday, July 18.
Week 3	*forall x*, chapters 11 - 13: proofs, part 1
	Test 3 is due by Thursday, July 24.
Week 4	*forall x*, chapter 12: proofs, part 2
	forall x, chapter 15: theorems
	Test 4 is due by Tuesday, August 5.