

**Phil 2700: Elementary Logic**  
8:00am-9:15am T/TH – Strickland Hall #117

**Instructor:** Kenneth Shields

**Email:** kwsb56@mail.missouri.edu

**Office Hours:** Tuesdays 9:40-10:40am; Thursdays 1:00-2:00pm

**Location:** Second Floor of Student Center (Brady Commons), Leadership Lounge

**Text:** Merrie Bergmann, James Moor, Jack Nelson, *The Logic Book*: 6th edition.

**Other required materials:** access to (1) Blackboard, (2) a word processor, (3) a PDF reader, and (4) notebook paper/pencil

### **Course Description**

In this course, the word 'logic' refers to a deductive system for deriving sentences from other sentences. Arguments given in English (or any natural language) can be translated into a symbolic language in order to (a) reveal the inherent logical structure of the sentences that compose the argument and to (b) provide more precise rules for when such arguments count as logically valid. By developing a derivation system via this artificial language, conclusions of valid arguments can be shown to logically follow from the argument's premises, using a step-by-step proof. The similarity of this derivation system to proof systems within mathematics is no coincidence – it is essentially logic that makes such systems possible. Furthermore, this course serves as a good introduction to some foundational concepts within computer science, since computers work *only because* logic works.

### **Course Goals**

After completing the entire course, you should be able to:

- Construct formal arguments from informal written passages and essays.
- Give truth-value meanings to the truth-functional connectives within propositional logic and provide symbolizations of English sentences and arguments into sentential logic.
- Better recognize the logical structure of arguments.
- Construct derivations for valid arguments using step-by-step rules for derivational systems within sentential and predicate logic.

### **What you should expect from this course**

While the word 'elementary' might suggest a beginner's atmosphere, it's extremely important that you appreciate just how *difficult* being introduced to something for the first time can be! Instead of thinking you're about to play a game on the easy setting, you should

remember what it's like to attempt something you hadn't done before. For example, an introductory course on playing the piano would be quite challenging if you had no previous experience playing piano. Given that this will likely be your first experience working with derivation systems of sentential and predicate logic, you should expect an analogous challenge (if not greater). But just like learning to play piano, your persistence and diligent practice in this course will be rewarded with the development of your abilities.

### **What I (and your peers) expect from you**

This is in many ways like a *math* course. You are expected to do the readings and attend class sessions (of course), but this will not be sufficient. You must practice, practice, practice! Competence with the artificial languages you will be learning in this class comes only with practice. And while you are allowed to practice in groups, please don't let other carry the weight for you. Their practice can help you see where you are making mistakes, and so on, but only your own practice can help you develop the skills need to do well in this course.

### **What you should expect from me**

As the instructor for this course, you should expect me to explain the material using clear examples and relevant discussion, to be available during office hours to assist and address any questions you may have, to grade assignments in a timely manner, and to respond to emails within a reasonable time. I plan on offering a questionnaire evaluating how I'm doing as an instructor around mid-semester, but any concerns you have can be discussed with me during office hours.

### **Course Outline**

(Tentative: Material may be added or deleted as time allows or requires. Dates for specific reading assignments will be given in the lectures and on blackboard.)

- I     Introduction to Deductive Logic  
1.1, 1.2, 1.3  
Willingham, Why Don't Students Like School?, Blackboard (suggested)
  
- II    Syntax and Symbolization  
2.1, 2.2, 2.3
  
- III   Sentential Logic: Semantics  
3.1, 3.2, 3.3, 3.4, 3.5, 3.6
  
- IV    Sentential Logic: Derivations  
5.1, 5.2, 5.3, 5.4
  
- V.    Predicate Logic: Syntax and Symbolization  
7.1, 7.2, 7.3, 7.4, 7.5
  
- VI.   Predicate Logic: Derivations  
10.1, 10.2, 10.3

VII. Predicate Logic: Semantics  
8.1, 8.2, 8.3, 8.4

### Course Requirements

- Regular attendance and active participation in class are expected. Failure to attend class on a regular basis or repeated behavior that detracts from the quality of the class will result in a request to the Dean to cancel your enrollment in the course.
- Electronic devices (laptops, cell phones, smart phones, tablets, etc.) are *not permitted in class*. Such devices keep you and your fellow philosophers from fully engaging in discussion. Use of these devices counts as disrupting the class, which will result in your enrollment being cancelled. We won't cover anything so quickly that you won't be able to keep up with just pen and paper. Besides, there's research that suggests that having to copy your notes from paper onto your computer helps with retention and assimilation of the material.

- Exams

There are three exams for this course. Each exam is made up of multiple choice and true/false. The exams will not be cumulative. All exams will be taken in class.

1. First exam	(Thursday, 2/26)	(20%)
2. Second exam	(Thursday, 4/9)	(20%)
3. Third exam	(TBA – finals week)	(20%)

**First exam grade:** I realize that the first exam is usually the hardest, given that you don't know what to expect or how best to study for it. For this reason, you will have the option of replacing your first exam grade with the grade you make on your second or third exam. So suppose you make a 60 on the first exam, but an 80 on the second exam. In this scenario, I will change your first exam grade to an 80. Or suppose you made a 90 on the third exam. Then I would change the first exam grade to a 90. But be careful – it would clearly be unwise to blow off the first exam since you don't know how well you will do on the second or third exams. The best course of action is to do your very best on all three exams.

- Quizzes (10%)

There are 8 bi-weekly online quizzes to assess your comprehension of the material. The quizzes are intended to help you prepare for the exams. Each quiz is made up of 5 total questions, multiple choice or true/false. The questions will come from the readings/lectures for the prior two weeks. The quizzes will be available in the *Quizzes* area of Blackboard. When a quiz becomes available, it remains available until its due date. Once the quiz has begun, you will have *20 minutes* to complete it. If you lose your internet connection or are unable to submit the quiz, *contact me as*

*soon as possible!* Quizzes will not be cumulative. At the end of the semester, I will replace two of your lowest quiz grades with your highest quiz grade.

**IMPORTANT:** The following are key considerations to successfully completing quizzes:

- Complete all assigned readings (textbook and lecture) prior to accessing the online quiz.
  - Force completion is turned ON: you must complete the quiz once you start it – you may *NOT* come back to the quiz later. If you are disconnected, send email to your instructor immediately. After contacting your instructor, please send an email to [blackboard@missouri.edu](mailto:blackboard@missouri.edu), with your name, username, course name, the title of the exam, and a description of the problem.
  - To ensure Blackboard logs every answer, click the “Save” at the bottom of the page every two or three questions. You must click “Submit” in order to have your quiz graded.
  - You *MUST* enable Compatibility View with Internet Explorer 8. A complete list of supported browsers is available [online](#).
- 
- In-class Exercises, Activities, and Peer-Review Assignments (10%)  
There will be a variety of in-class activities and assignments which are meant to give you a chance to practice the kinds of skills and abilities this course is designed to help you develop. They are relatively low-stakes and are all designed to help you achieve the course goals. At the end of the semester, I will replace one of your lowest in-class exercise grades with your highest in-class exercise grade.
- 
- Self-Graded Homework (10%)  
There will be numerous self-graded homework assignments. These assignments involve the unstarred exercises which the authors of our textbook provide solutions for on the website that accompanies the book. Competence with these artificial languages comes *only* by way of practice! You may work in groups to complete these, but please no more than three students per group. Be vigilant, however: pull your own weight (for your own sake)! Self-graded homework will be assigned a grade of 5, 4, 3, or 0:  
  
5 = Completed carefully, with only minor omissions  
4 = Submitted but incomplete or not careful  
3 = Submitted but substantially incomplete or careless  
0 = No homework submitted
- 
- Instructor-Graded Homework (10%)  
There will be six instructor-graded homework assignments. Competence with these artificial languages comes *only* by way of practice! You may work in groups to complete these, but please no more than three students per group. Be vigilant,

however: pull your own weight (for your own sake)! Instructor-graded homework will be assigned a grade from 0 to 5:

- 5 = Very Good
- 4 = Good
- 3 = A serious attempt
- 2 = Some effort
- 1 = Unacceptable
- 0 = No homework submitted

### **Grades and Other Concerns**

- Plus/minus grading will be used: A+ (100%-97%), A (96%-94%), A- (93%-90%) and so on. Grades will not be curved. There will be no extra credit assignments.
- *Missed exams may be made up only if there is a verified medical excuse or the equivalent and the request is made within one day after the exam or essay due date. Missed quizzes and other assignments will be excused under the same conditions.*
- Concerns about grades or any other “business” aspects of the course should be reserved for my office hours. These concerns will not be addressed during class sessions. If the concern remains unresolved, the next step is to contact the Philosophy Department chair, Professor Robert Johnson (438 Strickland Hall).

### **Academic Integrity**

Academic integrity is fundamental to the activities of a university. Academic dishonesty will result in a failing grade on the assignment and, most likely, for the course. The case will be reported to the Office of the Provost for disciplinary action under the University’s Collected Rules and Regulations. Discipline may include suspension or permanent expulsion from the University. When in doubt about plagiarism, paraphrasing, quoting or collaboration, consult with your discussion section leader or with me.

### **Students with Disabilities**

If you anticipate barriers related to the format or requirements of this course, if you have emergency medical information to share with me, or if you need to make arrangements in case the building must be evacuated, please let me know as soon as possible. If disability related accommodations are necessary (for example, a note taker, extended time on exams, captioning), please register with the Disability Center (<http://disabilitycenter.missouri.edu/>), S5 Memorial Union, 573- 882-4696, and then notify me of your eligibility for reasonable accommodations. For other MU resources for persons with disabilities, click on "Disability Resources" on the MU homepage.