

PHIL 351: LOGIC

Samford University, Spring 2023

Basic Information:

Instructor: Dr. Taylor Cyr
Instructor's Email: tcyr@samford.edu
Instructor's Office: Chapman Hall 315

Class Meeting Times: TTh 1:00pm-2:50pm
Class Meeting Location: Chapman 214
Office Hours: TTh 9:00am-10:00am

Required Text:

- Merrie Bergmann, James Moor, and Jack Nelson. 2014. *The Logic Book* (sixth edition). McGraww-Hill. ISBN 0078038413.

Course Overview

Catalog Description:

Introduction to basic principles of correct reasoning, presenting criteria for sound, informal arguments and valid, deductive arguments.

A Bit More Detail:

This course provides a basic introduction to sentential (i.e., propositional) and predicate (i.e., quantificational, or first-order) logic. We begin with basic notions of argument, validity, and inference. We then learn how to symbolize arguments in natural languages like English by translating them into a formal language, beginning with the language of sentential logic. We then learn both semantic and proof-theoretic methods for determining whether arguments in the formal language are valid.

Logic is a field of study on its own, and the logic of sentential and predicate logic is the entry ticket into that field. Moreover, determining whether arguments are valid is incredibly useful in philosophy, where arguments play a crucial role, and the basic tools of logic (e.g., truth functions) are central to such other disciplines as computer science, linguistics, and mathematics. In addition, the material covered in this course has broader application, as it is key to problem solving in general and being a good critical reasoner. One place where this application is most apparent is with the logical reasoning and logic game questions on the LSAT exam required for entry into most law schools, and this course provides tools for answering such questions quickly and accurately.

Course Requirements (% of Final Grade)

- Attendance and Participation (20%)
- Homework Sets (20%)
- Exams (60%)

Attendance and Participation:

- You must attend class, be on time, bring your copy of the textbook, listen attentively, complete in-class exercises, and answer and ask questions. Your final participation grade will include an evaluation of your attendance as well as your participation during class meetings.

Homework Sets:

- The material takes time to digest, assimilate, and, above all, practice, so you must stay on top of the material as it is being assigned and covered in class.

- For this reason, you will benefit from completing the assigned readings before coming to class and also from completing the exercises in the assigned readings. These will not be graded, but practice is vital to success in the course. (Solutions to unstarred exercises available [here](#).)
- That said, some exercises will be graded. There are four homework sets, each worth 5% of your total grade. These are due at the beginning of class on the days indicated on the schedule below.

Exams:

- There will be four examinations (see below for dates). Each exam is worth 15% of your total grade. You will not be allowed to use the textbook, notes, or any other outside resources while taking the exams. However, you will be provided with a copy of the derivation rules listed in the inside front cover and subsequent two pages of the textbook for Exams 2 and 4.
- Exam 4 will be given during the penultimate class period. The scheduled final exam will comprise the voluntary opportunity to re-sit (for any reason) no more than three of the four exam. Each exam re-sit will be distinct from, but similar in content and format to, the original.

Grading Scale: 93-100= A; 90-92= A-; 87-89= B+; 83-86= B; 80-82= B-; 77-79= C+; 73-76= C; 70-72= C-; 67-69= D+; 63-66= D; 60-62= D-; 0-59= F

Course Policies

I. Statement regarding online or remote delivery if the course must transition to a digital learning format

The 22-23 academic year will see the return of many regular activities and operations; however, as the presence of Covid-19 is monitored on campus and within our community, state law, local health orders, and CDC guidance could affect the course activities and modality (including a change to an emergency remote or online course). Students must attend class and check email and Canvas regularly for any important updates from the course instructor and/or university administration.

II. Mask requirements within the educational setting:

The instructor reserves the right to require masking within the classroom.

III. Student illness or vulnerable to COVID-19

Vaccination and receipt of vaccine booster doses are the best way for a student to reduce the risk of academic disruption due to COVID-related illness. Samford University strongly encourages all members of our community, including students, to receive the COVID-19 vaccine and booster doses at recommended intervals. However, there may be individual circumstances where students may not be able to receive the vaccination or choose not to receive the vaccination. Students who are not able to attend a required class meeting because of quarantine, illness, or contact with a COVID-19 positive individual should notify the instructor of record within 24 hours of the class meeting. Additionally, students should respond to contact by the Academic Success Center for assistance in coordinating academic support due to Covid-19 related absences. An excused absence does not relieve a student of responsibility for the academic work in the class missed.

Students who have a disability which makes them more vulnerable to COVID-19 (e.g., immune-compromised,) must register with Disability Resources and follow standard procedure.

IV. Technology needs

Because of the possibility of a student needing to participate in the course virtually at some point during the semester, all students should have the following technology available to them:

- A Windows 10 or Macintosh desktop or laptop computer; although Chromebooks and mobile devices are capable of accessing the Canvas learning management system, they may not be compatible with certain third-party software.
- A web cam (built into most modern laptops)
- A microphone and speakers, headphones, or earbuds (also built in to most modern laptops)
- The most recent version of the Chrome or Firefox Web browser; the Safari browser can be particularly problematic when accessing online courses.
- A stable Internet connection capable of at least 2 Mbps upstream and 5 Mbps downstream. Students may test the speed of their connection at <http://speedtest.net>

As stated in the Student Handbook, “Student use of cell phones, messaging devices and other electronic devices (for example, recording devices, music players, PDAs, computers) is prohibited in classes unless specifically permitted by the instructor.” In other words, you may not use your phone or computer (or any other electronic device) in class without meeting with me in advance to get permission. I will allow you to use a computer if you have an accommodation or if you otherwise make a case for why you want to use an electronic device in class, but in either case you will need to meet with me in person to discuss.

V. Emergency Readiness

RAVE is the primary method of communication used by Samford University during a campus emergency. If you have not registered for RAVE alerts, please use the link provided below and go to the My Contact Information box on your Portal homepage to update your RAVE Emergency Alert Information. <https://connect.samford.edu/group/mycampus/student>

Samford University utilizes Alert Samford for desktop, laptop, tablet, and mobile devices to provide students with information, procedures, and links about what to do in the event of a variety of emergency situations that could occur on our campus. If you do not already have the Alert Samford app on your mobile device, laptop, desktop, or tablet, please click on this link

<https://connect.samford.edu/group/mycampus/student> and go to the Emergency Information box on your Portal homepage for instructions on downloading the App. Once you have downloaded the App, please take time to review the information provided, it is important that you know what to do in the case of a campus emergency.

VI. Americans with Disabilities Act

Students with disabilities who wish to request accommodations should register with Accessibility and Accommodations (205) 726-4892, access@samford.edu, DBH 105, <https://www.samford.edu/departments/disability-resources/>. Students who are registered with Accessibility and Accommodations are responsible for providing me with a copy of their accommodation letter and scheduling a meeting with me to discuss how their approved accommodations will apply to this course. Accommodations will not be implemented until we have met to review your accommodation letter.

VII. Title IX

Samford University and its faculty are committed to creating and maintaining a safe learning environment for all students and the entire University community. If you or someone you know has experienced sexual harassment, sexual assault, relationship violence, stalking, or discrimination based on sex or gender, please know that help and support are available. Samford University strongly encourages all community members to report incidents of sexual misconduct to the Title IX Office. You may contact the Title IX Office at 205-726-2764 or titleix@samford.edu.

Please be aware that all faculty members are required to disclose information concerning suspected or alleged sexual harassment or other violations of the Samford University Sexual Misconduct Policy to the Title IX Office. You can also make a disclosure yourself, including an anonymous report, through the Sexual Misconduct Report Form accessible on the Title IX website at <https://www.samford.edu/students/title-ix/>. If the Title IX Office receives information about an incident, they will reach out to offer information about resources, rights, and available procedural options. It is a student's choice whether they wish to engage or respond to that outreach.

If you, or another student you know, wishes to speak with a confidential resource who is not obligated to report information to the Title IX Coordinator, please reference the list of confidential resources in the online student handbook. You can also connect with a confidential resource through the Counseling Office at 205-726-4083 or the Office of Spiritual Life at 205-726-2825.

VIII. Student Bereavement Policy

In the event a student experiences the death of a significant member of his or her family or community, the University may excuse absences up to five days for travel and bereavement. The Provost's office will notify advisors and instructors of excused absences. It will be the responsibility of the student to follow up with faculty regarding missed exams, quizzes and required work for the class.

IX. Communication Resource Center

The Communication Resource Center (CRC) offers free tutoring for Samford students in oral and written communication, as well as support for developing and improving critical reading skills. CRC appointments are available Monday-Thursday. Students can schedule appointments at samford.mywconline.com. Students will upload files for the tutor to review and meet in real-time sessions with a tutor. For more information, visit <http://www.samford.edu/departments/communication-resource-center/>

Note: The first time you schedule an appointment, you will need to create an account, using your Samford email and password.

X. Inclement Weather

Inclement weather or other events beyond the control of the University that might cause risk or danger to students, faculty and staff may occasionally result in changes to normal University operations, including cancellation of classes or events; the class schedule and/or calendar may be adjusted.

XI. Counseling Services

Students may benefit from meeting with a counselor at some point to discuss difficult issues, gain insight for dealing with stress, or to process and understand events from the past. When a need for counseling arises, students should contact Counseling Services & Wellness Programs. On-site appointments are prepaid through student fees and there is no extra cost to the student. To schedule an appointment, please email counseling@samford.edu, call 205-726-2065, or stop by Dwight Beeson Hall (DBH) room 203.

XII. Library Services

Samford University Library (library.samford.edu) is more than just a building; it is a vast array of resources curated to support your success. In addition to print, media, and online resources, the library has collaborative meeting and study spaces, technology that supports your academic

endeavors, and professional librarians with the expertise to assist with research needs. Please Ask Us (samford.libanswers.com), email us (reference@samford.edu), or call us at 205-726-2196 for more information about how we can help. We are here to assist with your information and research needs.

XIII. Student Government Association Samford University Honor Pledge

Preamble

Samford University's motto—For God, For Learning, Forever—brings together our commitment to our Christian heritage, the pursuit and transmission of knowledge, and the enduring virtues.

Only a particular kind of person and institution can fulfill such a demanding motto. To do this, the individuals who form the Samford community must embrace honor in all areas of life and scholarship. Thus, an honor pledge is an appropriate way for the Samford community to live out its motto.

Honor Pledge

I believe that the members of the Samford community possess dignity and are worthy of honor.

I understand that honoring others fosters academic achievement, personal growth, and spiritual development.

I commit to hold myself and my peers to the standards of conduct and academic integrity maintained by the University.

To this I, _____, pledge my sacred honor.

For God, For Learning, Forever

Course Schedule and Readings¹

Part 1: Introduction

- Week 1
 - 1/10: Introduction to the Course
 - *No assigned reading*
 - 1/12: Introduction to Deductive Logic
 - 1-24

Part 2: Sentential Logic

- Week 2
 - 1/17: Syntax and Symbolization
 - 24-68
 - 1/19: Semantics: Introduction to Truth Tables
 - 69-76

¹ All readings are found in the sixth edition of *The Logic Book* (the assigned textbook).

- Week 3
 - 1/24: Semantics: Logical Status, Equivalence, and Consistency
 - 77-95
 - *Homework Set 1 due at beginning of class*
 - 1/26: Semantics: Entailment and Validity
 - 95-105
- Week 4
 - 1/31: *Exam 1*
 - 2/2: Introduction to Derivations
 - 146-149
- Week 5
 - 2/7: Derivations: The Non-Subderivation Rules; Conditional and Biconditional Proofs
 - 149-159
 - 2/9: Derivations: *Reductio Ad Absurdum*; Disjunction Elimination
 - 159-174
- Week 6
 - 2/14: Derivations: Strategy; Complicated Derivations
 - 175-214
 - 2/16: Application of Sentential Logic: LSAT Logic Games
 - *No assigned reading*
 - *Homework Set 2 due at the beginning of class*
- Week 7
 - 2/21: More LSAT Problems; Review
 - *No assigned reading*
 - 2/23: *Exam 2*

Part 3: Predicate Logic

- Week 8
 - 2/28: The Limits of Sentential Logic; Introduction to Predicate Logic; Syntax
 - 262-276
 - 3/2: Symbolization
 - 276-296
- Week 9
 - 3/7: *Spring Break (No Class)*
 - 3/9: *Spring Break (No Class)*
- Week 10
 - 3/14: Symbolization (continued)
 - 296-328
 - 3/16: Semantics: Interpretations
 - 329-351
- Week 11
 - 3/21: Semantics: Quantificational Truth/Falsehood/Indeterminacy, Equivalence, Consistency, Entailment, and Validity
 - 351-380
 - *Homework Set 3 due at the beginning of class*
 - 3/23: Semantics: Identity and Functors
 - 381-401

- Week 12
 - 3/28: *Exam 3*
 - 3/30: Introduction to the Predicate Derivations (PD) System
 - 474-491
- Week 13
 - 4/4: Using Derivations to Establish Syntactic Properties of PD
 - 492-521
 - 4/6: Some Additions to PD
 - 521-525
- Week 14
 - 4/11: Derivations with the Identity Predicate
 - 526-544
 - *Homework Set 4 due at the beginning of class*
 - 4/13: More Derivations; Review
 - *No assigned reading*
- Week 15
 - 4/18: *Exam 4*
 - 4/20: Course Summary and Review
 - *No assigned reading*
- *Final Exam Week*
 - 4/27, 8:00am-10:00am: *Final Exam* (see above)
 - *No late work will be accepted after the end of the final exam period.*