

PHI 251: Logic

Syracuse University, Fall 2021

Course Description

In a good deductive argument the conclusion *follows from* the premises. But what exactly does this “following from” involve? Logic aims to answer that question by giving a precise account of the relation of *logical consequence* that holds between the premises and conclusion of a valid argument. In this course we will begin by studying [Truth-Functional Logic](#), and then move on to the more complex system of [First-Order Logic](#). We will learn how to formally represent the logical structure of English arguments in each system, and then develop a semantics as well as a system of natural deduction to determine whether these formally represented arguments are valid. Upon completing the course students will be familiar with basic model- and proof-theoretic concepts and techniques, and be able to apply them to analyze and evaluate natural language arguments.

Contact Information

Michael Rieppel

Email: morieppe@syr.edu

Office Hours: Tu 3:30–5:30 in 523 Hall of Languages (or by appointment)

Teaching Assistants:

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| | Noah Lanning | Bertie Probyn |
| Email: | njlannin@syr.edu | bnprobyn@syr.edu |
| Discussion Times: | Fr 10:35 and Fr 11:40 | Mo 10:35 and Mo 12:45 |
| Office Hours: | We 12:30–2:30 | Th 4–6 |

Course Logistics

Lectures are Tu/Th 2:00 – 2:55pm in 107 Hall of Languages. You are also enrolled in a separate discussion section with a TA that meets once per week. Attendance in lectures and discussion sections is mandatory. Problem sets will be submitted to, and graded by, your TA.

Course Resources

The textbook for this course is [forallx@syr](#). A pdf is available on my website via the preceding link, but you should get a printed copy at the SU Bookstore that you can bring with you to lecture and discussion section. (Note: there are many versions of the *forall x* textbook floating around in print and online, all differing from each other in various ways. Be sure you are working with the *forallx@syr Fall 2021 Edition*.) Problem sets, handouts, announcements and other course resources will be posted on Blackboard. Make sure to regularly check your @syr email for course announcements.

Grades

- (i) Final Exam (35%)
- (ii) Midterm Exam (25%)
- (iii) Quizzes (20%), problem sets (15%), attendance/participation (5%)

Letter grades are based on the usual scale of 93+ = A, 90-92 = A-, 87-89 = B+, 83-86 = B, 80-82 = B- etc. Your lowest problem set score will be dropped. There won't be any extra credit assignments.

Schedule

The following is a *tentative* schedule and subject to change as we proceed (but note the exam dates). Details about the evolution of the course will be announced in lecture.

Week 1 8.30: What is Logic? [Ch. 1]

Week 2 9.6: Symbolization in TFL [Ch. 2]

Week 3 9.13: Symbolization in TFL [Ch. 2]

Week 4 9.20: Semantics of TFL [Ch. 3]

Week 5 9.27: Semantics of TFL [Ch. 3]

Week 6 10.4: Natural Deduction for TFL [Ch. 4]

Week 7 10.11: Natural Deduction for TFL [Ch. 4]

Week 8 10.18: Natural Deduction for TFL [Ch. 4]

Midterm Exam: October 26, in class

Week 9 10.25: Symbolization in FOL [Ch. 5]

Week 10 11.1: Symbolization in FOL [Ch. 6]

Week 11 11.8: Natural Deduction for FOL [Ch. 6]

Week 12 11.15: Natural Deduction for FOL [Ch. 6]

Week 13 11.29: Semantics of FOL [Ch. 7]

Week 14 12.6: Semantics of FOL [Ch. 7]

Final Exam: Fr Dec. 17, 8-10am

Course Policies

Academic Integrity

Do not cheat. Any established academic integrity violation may result in course failure, regardless of violation level. Using websites like Chegg or Course Hero to post assignment or exam questions, or obtain solutions, violates academic integrity expectations in this course. For details on SU's academic integrity expectations and policies visit:

<http://class.syr.edu/academic-integrity/policy/>

All work submitted for **quizzes and exams** must be yours alone. Discussing or communicating about quiz or exam questions with anyone during the quiz or exam period violates academic integrity expectations for this course.

Discussing **problem sets** with your TA, or me, or your classmates is fine. But the answers you submit for grading *must have been written up by you individually*. Directly copying someone else's work counts as a violation of academic integrity.

You may **work in a group** on problem sets, and we'll give you two extra credit points on a given assignment if you do, subject to the following rules:

- Groups may have at most four members. You must list your group members at the top of your assignment to receive group credit points.
- Each group member is expected to have worked independently on the problem set for at least one hour prior to meeting with the group. If someone in your group shows up without having done preliminary work, let them know that's not acceptable.
- Each group member has to write up and turn in their own individual assignment. Again: simply copying someone else's work counts as a violation of academic integrity.

Tutoring

The Center for Learning and Student Success (CLASS) will offer tutoring for PHI 251 this semester. Tutoring will be available on the lower level of Byrd Library (Table 2) at the following times: Mo 7-8pm, We 7-8pm, Th 6:30-7:30pm.

Health

We expect you to abide by the public health guidelines specified by the university. For the current COVID Alert Level and associated guidelines see <https://www.syracuse.edu/staysafe/>

Mental health and overall well-being have a significant impact on academic success. It is important to develop skills and resources to effectively navigate stress, anxiety, depression and other mental health concerns. Please familiarize yourself with the range of resources the **Barnes Center** provides and seek out support for mental health concerns as needed. Counseling services are available 24/7, 365 days a year, at 315.443.8000, and I encourage you to explore the resources available through the **Wellness Leadership Institute**.

Accommodations for Students with Disabilities

Syracuse University values diversity and inclusion; we are committed to a climate of mutual respect and full participation. There may be aspects of the instruction or design of this course that result in barriers to your inclusion and full participation in this course. I invite any student to contact me to discuss strategies and/or accommodations (academic adjustments) that may be essential to your success and to collaborate with the [Center for Disability Resources \(CDR\)](#) in this process. Since accommodations may require early planning and generally are not provided retroactively, please contact the CDR as soon as possible.

Extensions and Absences

Note the dates of the midterm exam and the final exam. Do not make plans that conflict with these exam dates. All students must take the exams at the scheduled time and date.

To request an extension on an assignment you need to contact your TA at least *48 hours* before the assignment is due. Unexcused late work will not be accepted. If you expect to be absent from class for a religious observance, please notify me within the first two weeks of the semester.

Electronic Devices

Please do not use electronic devices during lecture. Phones, tablets, computers etc. should be put away and the volume muted. If you think you need to use an electronic device during lecture in order to succeed in this course, come speak to me individually.

Email Policy

I will do my best to reply to emails about *brief* class-related questions within 24 hours on weekdays. For substantive inquiries, please come see me during office hours or schedule an appointment.