

# Symbolic Logic

*NOTE: it is your responsibility to read this document carefully. This is an agreement between you and your instructor. If you email me about something that is obviously stated in the syllabus, you will either receive no answer or I will reply, simply, "Read the syllabus!" However, if you read the syllabus and you still do not have an answer, then email me with your question.*

## I Course Information

- Course number: PHI 3130.
- Sections 3312, 3313, 3314.
- Lecture:
  - Mondays and Wednesdays, Period 8 (3:00 PM – 3:50PM).
  - Location: Keene–Flint Hall 0105.
- Discussion:
  - Class 16451 (section 3312): Fridays, Period 4 (10:40 AM – 11:30 AM), Matherly Hall 0015.
  - Class 20041 (section 3313): Fridays, Period 6 (12:50 PM – 1:40 PM), Matherly Hall 0005.
  - Class 20042 (section 3314): Fridays, Period 7 (1:55 PM – 2:45 PM), Matherly Hall 0004.
- Instructor:
  - Rodrigo Borges
  - Office: Griffin–Floyd Hall, room 314.
  - Office Hours: Mondays 4:30pm – 6:30 (or by appointment).
  - Contact Information: rodrigo.borges@ufl.edu.
- Teaching Assistant:
  - James Simpson
  - Office: Griffin–Floyd Hall, room 318.
  - Office Hours: Wednesdays 4:00PM – 6:30PM (or by appointment).
  - Contact Information: simpson.james@ufl.edu.

## 2 Course Goals

This course will familiarize students with the syntax, semantics, and some of the metalogical results of first-order propositional and predicate logic. Students will also learn some extensions of those first-order logics, such as modal logic. Finally, we will explore connections and differences between formal logic and human reasoning.

## 3 Textbook

The textbook for the course is *The Logic Book* (6th edition). Please note that this course will be participating in the UF All Access program for Spring 2021. The ALL ACCESS program will allow you to gain access to the required materials for the course at a significantly discounted price.

- *Please see UF All Access PDF posted in Canvas for directions on how to opt-in and access your course materials.*

Go to <https://bsd.ufl.edu/allaccess> to log into your GatorLink account. You will see a list of classes in which you are enrolled that are participating in UF All Access, with the prices. Click the Opt-in check box next to the appropriate class. You may have more than one class that you are taking participating in the program. Students then need to click the button below to authorize the charges.

For Connect Users: The access code is now displayed. NOTE: Copy this code now. You will use this code to register for McGraw-Hill Connect, which is required for this course. You can open a new tab and log into Canvas for your course then follow the instructions below to register for Connect.

For digital eBooks: After opting-in, you'll receive an email at your @ufl.edu within 24 hours of opting in, which will provide you with access to your bookshelf

The charge for the materials will be posted directly to your student Bursar account and is eligible to be paid automatically by qualifying financial awards. If you drop the course during the add/drop period, no charges will appear.

The classes that you opted into will continue to be displayed at <https://www.bsd.ufl.edu/AllAccess/OptIn> through January 28th. Be sure to register the access code before this deadline.

Contact your Bookstore on campus with any questions. [allaccess@bsd.ufl.edu](mailto:allaccess@bsd.ufl.edu)

## 4 Attendance and Classroom Policies

Students are expected to attend class and to have done all assigned reading in advance. Failure to do so will adversely affect students' ability to perform well in this course.

Although attendance is not required, it is expected. Polls will be conducted during class (see below for details).

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

- <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

Our class sessions may be audio-visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. However, the recording will not be shared unless you have a valid excuse. Students who participate with their camera engaged

or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voice recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the 'chat' feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials by students or any other party is prohibited.

In response to COVID-19, the following practices are in place to maintain your learning environment, to enhance the safety of our in-classroom interactions, and to further the health and safety of ourselves, our neighbors, and our loved ones.

1. If you are not vaccinated, get vaccinated. Vaccines are readily available at no cost and have been demonstrated to be safe and effective against the COVID-19 virus. Visit this link for details on where to get your shot, including options that do not require an appointment: <https://coronavirus.ufhealth.org/vaccinations/vaccine-availability/>. Students who receive the first dose of the vaccine somewhere off-campus and/or outside of Gainesville can still receive their second dose on campus.
2. You are expected to wear approved face coverings at all times during class and within buildings even if you are vaccinated. Please continue to follow healthy habits, including best practices like frequent hand washing. Following these practices is our responsibility as Gators.
  - Sanitizing supplies are available in the classroom if you wish to wipe down your desks prior to sitting down and at the end of the class.
  - Hand sanitizing stations will be located in every classroom.
3. If you are sick, stay home and self-quarantine. Please visit the UF Health Screen, Test and Protect website about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email [covid@shcc.ufl.edu](mailto:covid@shcc.ufl.edu)) to be evaluated for testing and to receive further instructions about returning to campus. UF Health Screen, Test and Protect offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the UF Health Screen, Test and Protect website for more information.
  - Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work.
  - If you are withheld from campus by the Department of Health through Screen, Test and Protect you are not permitted to use any on campus facilities. Students attempting to attend campus activities when withheld from campus will be referred to the Dean of Students Office.
4. Continue to regularly visit [coronavirus.UFHealth.org](https://coronavirus.UFHealth.org) and [coronavirus.ufl.edu](https://coronavirus.ufl.edu) for up-to-date information about COVID-19 and vaccination.
5. This course will NOT be synchronously taught on Zoom.

## 5 Course Requirements

Six different instruments will be used in order to measure student progress through the course. The name of each instrument, and the relative weight each of them carries in determining your final grade is the following; a brief description of each instrument follows.

Assignment	Total Number	% of Course Grade
Homework	15	10%
Tests	6	20%
Polls	25	10%
Participation in Discussion Boards	15	10%
Midterm Exam	1	20%
Final Exam	1	30%

### 5.1 Homework

Homework will be posted on Canvas every Wednesday by noon. Answers are due 10:30 AM on Friday. The reason for this deadline is simple: the solution to the questions in the homework will be given in your discussion section Friday. I will drop the three lowest grades.

Unless they have a valid excuse, students will not be allowed to make up missed homework.

### 5.2 Tests

There will be six (6) tests during the course. I will drop the lowest grade.

*If you receive a grade lower than 85% for any test, YOU MUST discuss your test with Rodrigo or your TA ASAP. Failure to do so will result in inability to take future tests.*

### 5.3 Polls

There will be polls during lectures (i.e., Mondays and Wednesdays) throughout the semester. Polls will use the iClicker system. For information on this system, please see

- <https://classrooms.at.ufl.edu/classroom-technology/iclicker-response-system/>

For this class, you will use the iClicker Reef application, either on a smartphone or a computer.

You must register your clicker as soon as possible, but certainly before the first graded poll on Wednesday 1/19/22. See the iClicker registration page for more details.

There will be no poll in the first week of the semester, to give everyone time to set up the application.

There will be ungraded polls in the second week of the semester, to allow you to check the app is working properly. At all times during the semester, it is your responsibility to make sure that the app is working properly. Makeup polls will not be given for clicker problems unless you have a valid excuse.

Starting on Wednesday 1/19/22, there will be at least two graded poll questions in every lecture. Typically, the first question will be soon after class begins, and the second will be at the end of class. For each question, you will receive two points for a correct answer, one for an incorrect answer, and zero for not answering.

You will receive a poll grade for each lecture from 1/19/22. Your three (3) lowest scores will be dropped. The remaining scores will each count equally towards your poll grade. Dropping those three lowest scores will allow for occasional absences. Makeup polls will not be given unless you have a valid excuse.

Unless otherwise determined by your instructor, polls are individual assignments. You may not consult other students while taking an individual poll. You may not use someone else's clicker for them, or have someone else use your clicker. These are violations of academic honesty (see section 5 below).

## 5.4 Participation in Discussion Boards

You are required to come up with an appropriate question about the material (readings and/or lectures) in at least eight (8) different discussion boards. Questions must be submitted by midnight Wednesday. You will not be able to see the discussion board and others' submitted questions until you have submitted your own.

Once you have access to the discussion board, you should read what other questions students have posted. Think about which questions you would most like to see answered, and then use the 'like' function to indicate those you most want addressed. You should complete this by Thursday evening, since your vote will inform the discussion in class on Friday.

The quality of your question in that discussion board is not a factor in determining your grade. What *is* a factor in determining your grade is following: whether or not you submit appropriate questions for at least six of the discussion boards. Here's what makes a question an appropriate one.

There are two requirements.

1. *Specificity*: your question must be reasonably specific. That is, it must refer to some particular point in the material introduced that week. You will not get away with open-ended questions like 'What is A's view about X?'
2. *Precision*: your question must fit into one of the categories below. When you post your question, you must indicate which category it belongs to. (You can simply put the name of the category at the start of your question.)
  - *Clarification*: questions of clarification ask for help in understanding a specific point or passage in the lectures or readings. For example, you might ask, 'Why does Descartes bring up the discussion of an "evil demon" set on deceiving him if he doesn't actually think such a demon exists? How could that demon be relevant to his argument if he doesn't think it's real?'
  - *Significance*: questions of significance ask how a particular view or argument in a reading or lecture might have broader significance – that is, how it might have relevance for other things that aren't explicitly addressed in the readings or lectures. For example, you might ask, 'If Descartes is right that we don't know anything about the external world, does that mean that we should never trust what science tells us? Does it mean that we should live as if every day is our last day? What difference would it make if he's right?'
  - *Criticism*: questions in this category proposes a criticism of some argument or claim made in a reading or lecture. For example, you might ask, 'Descartes thinks we can't know at the moment that we're not just dreaming everything, but this seems to me false. If I flap my arms right now and don't find myself flying around like in a dream, doesn't that show that I'm not just dreaming?'

If you submit an appropriate question for at least eight of the regular discussion boards, your participation grade is a perfect '10.' You lose one point for each question shy of eight you fail to submit. If you submit less than five questions, you get zero (0) points.

## 5.5 Midterm and Final Exams

There will be a take-home midterm and a final exam. See the schedule below for due dates.

## 6 Grade Scale

See UF grading policies for assigning grade points at:

- <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.

	Grade Scale	Grade Value
A	100 - 93	4.00
A-	92 - 90	3.67
B+	89 - 86	3.33
B	85 - 82	3.00
B-	81 - 79	2.67
C+	78 - 75	2.33
C	75 - 72	2.00
C-	71 - 69	1.67
D+	68 - 66	1.33
D	65 - 62	1.00
D-	61 - 60	0.67
E	59 - 0	0.00

## 7 Academic Honesty

UF students are bound by The Honor Pledge, which states, 'We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: 'On my honor, I have neither given nor received unauthorized aid in doing this assignment.' The Honor Code

- <http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>

specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class. Plagiarism on any assignment will automatically result in a grade of 'E' for the course. Plagiarism is defined in the University of Florida's Student Honor Code as follows: 'A student shall not represent as the student's own work all or any portion of the work of another. Plagiarism includes (but is not limited to): a. Quoting oral or written materials, whether published or unpublished, without proper attribution. b. Submitting a document or assignment which in whole or in part is identical or substantially identical to a document or assignment not authored by the student.' Students found guilty of academic

misconduct will be prosecuted in accordance with the procedures specified in the UF honesty policy.

## **8 Students with disabilities**

Students requesting classroom accommodation must first register with the Dean of Students Office (<http://www.dso.ufl.edu/drp>). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation.

## **9 Online Course Evaluation**

Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester. Students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>.

## **10 Office Hours**

I strongly encourage you to set up a meeting to discuss anything related to the course. Rodrigo will hold office hours Mondays 4:30pm – 6:30 (or by appointment). To set up an appointment please email me at: [rodrigo.borges@ufl.edu](mailto:rodrigo.borges@ufl.edu).

James Simpson (TA) will hold office hours Mondays and Wednesdays 8:30AM — 10:00AM (or by appointment). To set up an appointment please email James at: [simpson.james@ufl.edu](mailto:simpson.james@ufl.edu).

## **11 Technical Issues**

Please, direct any questions about technical issues you might have to UF Helpdesk. The website is <https://helpdesk.ufl.edu/>. You may also call them at 352 392 4357.

## **12 Campus Resources**

- Health and Wellness:

1. U Matter, We Care: If you or someone you know is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu), 352-392-1575, or visit U Matter, We Care website ([www.umatter.ufl.edu](http://www.umatter.ufl.edu)) to refer or report a concern and a team member will reach out to the student in distress.
2. Counseling and Wellness Center: Visit the Counseling and Wellness Center website ([www.counseling.ufl.edu](http://www.counseling.ufl.edu)) or call 352-392-1575 for information on crisis services as well as non-crisis services.
3. Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit the Student Health Care Center website ([www.shcc.ufl.edu](http://www.shcc.ufl.edu)).
4. University Police Department: Visit UF Police Department website ([www.police.ufl.edu](http://www.police.ufl.edu)) or call 352-392-1111 (or 9-1-1 for emergencies).

5. UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; Visit the UF Health Emergency Room and Trauma Center website ([www.ufhealth.org/emergency-room-trauma-center](http://www.ufhealth.org/emergency-room-trauma-center)).

## **13 Academic Resources**

1. E-learning technical support: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at [helpdesk@ufl.edu](mailto:helpdesk@ufl.edu).
2. Career Connections Center: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.
3. Library Support: Various ways to receive assistance with respect to using the libraries or finding resources.
4. Teaching Center: Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.
5. Writing Studio: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.
6. Student Complaints On-Campus: Visit the Student Honor Code and Student Conduct Code webpage ([here](#)) for more information.
7. On-Line Students Complaints: View the Distance Learning Student Complaint Process ([www.distance.ufl.edu/getting-help/student-complaint-process](http://www.distance.ufl.edu/getting-help/student-complaint-process)).

## **14 Class Schedule (Subject to Change)**

1. Introduction to Deductive Logic  
1/5 - ch 1.1, 1.2 (\*\*all chapter notation refers to the textbook\*\*)  
1/10 - ch 1.3  
1/14 - Discussion
2. The Syntax and Symbolization of Sentence Logic  
1/17 - Holiday (no class)  
1/19 - ch 2.1  
1/21 - Discussion  
1/24 - ch 2.2  
1/26 - ch 2.3  
1/28 - Discussion  
1/31 - ch 2.4  
2/2 - ch 2.4  
2/4 - Discussion
3. The Semantics of Sentence Logic: Truth-Tables  
2/7 - ch. 3.1, 3.2  
2/9 - ch 3.3, 3.4, 3.5, 3.6  
2/11 - Discussion
4. Derivations in Sentence Logic  
2/14 - ch 5.1, 5.1.1  
2/16 - ch 5.1.1



2/18 - Discussion  
 2/21 - ch 5.3, 5.4  
 2/23 - ch 5.3, 5.4  
 2/25 - Discussion  
 5. The Syntax and Symbolization of Predicate Logic  
 2/28 - ch 7.1, 7.2  
 3/2 - ch. 7.3  
 3/4 - Discussion  
 3/7 - SPRING BREAK  
 3/9 - SPRING BREAK  
 3/11 - SPRING BREAK  
 3/21 - ch 7.3  
 3/23 - ch 7.4  
 3/25 - Discussion  
 3/28 - ch 7.5  
 3/30 - ch 7.5  
 4/1 - Discussion  
 6. The Semantics of Predicate Logic: Interpretations  
 4/4 - ch 8.1  
 4/6 - ch. 8.2, 8.3, 8.4  
 4/8 - Discussion  
 7. Derivations in Predicate Logic  
 4/11 - ch 10.1, 10.2  
 4/13 - ch 10.3, 10.4  
 4/15 - Discussion  
 4/18 - ch 10.1 – 10.4  
 4/20 - Final Exam Review