

Introduction to Logic 730:201

Instructor: E.J. Green

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Office hours: Thursdays 12:30-2:30 pm or by appointment
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Description: This course provides an introduction to symbolic logic. In symbolic logic, formal languages are used to model patterns of inference. We will begin with propositional logic, and then move to predicate logic. In both cases we will use semantic tableaux to test for validity, tautology, equivalence, satisfiability and joint satisfiability. The primary aim is for students to learn the value of using formal methods to study correct reasoning.

This course satisfies core curriculum goal:

‘QR’: Apply effective and efficient mathematical or other formal processes to reason and to solve problems.

Course Materials: The textbook for this course will be *Logic: The Laws of Truth*, by Nicholas J.J. Smith (Princeton University Press). The book is available for purchase through the Rutgers University Bookstore.

Tentative Schedule of Topics, Readings, and Assignments:

Date	Topic	Reading for this date	Assignments due
1/21	Introduction: Arguments and validity		
1/23	Basic and complex propositions	Ch. 1	
1/28	Connectives of propositional logic	Ch. 2	
1/30	Building truth tables	Ch. 3	
2/4	Building truth tables		Homework 1
2/6	Translations in propositional logic	Ch. 6	
2/11	Translations in propositional logic		Homework 2
2/13	Using truth tables to assess validity	Ch. 4	
2/18	Proofs in propositional logic	Ch. 7	Homework 3
2/20	Proofs in propositional logic		
2/25	Proofs in propositional logic		Homework 4
2/27	From propositional logic to predicate logic	Ch. 8 Sect. 1	
3/4	Midterm review		Homework 5

3/6	Midterm exam		
3/11	Language of monadic predicate logic	Rest of Ch. 8	
3/13	Translations in monadic predicate logic		
3/25	Translations in monadic predicate logic		Homework 6
3/27	Semantics of monadic predicate logic	Ch. 9	
4/1	Proofs in monadic predicate logic	Ch. 10	Homework 7
4/3	Proofs in monadic predicate logic		
4/8	Language of general predicate logic	Ch. 12 Sect. 1	Homework 8
4/10	Translations in general predicate logic		
4/15	Semantics of general predicate logic	Ch. 12 Sect. 2	Homework 9
4/17	Proofs in general predicate logic	Ch. 12 Sect. 3	
4/22	Proofs in general predicate logic		Homework 10
4/24	General predicate logic with identity	Ch. 13 Sect. 1-2	
4/29	Proofs in general predicate logic with identity	Ch. 13 Sect. 4	Homework 11
5/1	Final review		

This schedule is subject to change depending on how long it takes us to get through the material.

Grading: Since it is only possible to learn to do logic through extended practice, I will be assigning a number of homework assignments during the semester. However, I will only be collecting *six* of these assignments. These will make up 30% of your grade.

Since you will not know beforehand whether a given homework assignment will be collected, it is in your best interest to do all of the homework assignments. Homework will be collected in class. If you are absent on the day an assignment is collected without an excuse (for acceptable excuses, see below), or you fail to hand in the assignment for any other reason, you will receive a zero for that assignment.

The rest of your grade will be determined by a midterm and final exam. The final will be held during the scheduled examination period.

Homework: 30%

Midterm: 35%

Final: 35%

Sakai: All grades and other course information—including homework assignments—will be posted to the course Sakai website. As such, it is your responsibility to check the course Sakai

regularly. Furthermore, you should make sure that notifications from Sakai are sent to an e-mail address you check regularly.

Academic Integrity: For the Rutgers University policy on academic integrity, visit the following web address:

http://academicintegrity.rutgers.edu/files/documents/AI_Policy_9_01_2011.pdf.

I will regard cheating as a serious offense, and will in each case take the actions prescribed by university policy.

Attendance Policy: I expect students to attend all classes. If you must miss a class, please report your absence via the University online reporting website: <https://sims.rutgers.edu/ssra/>

Excused absences: Absences will be excused only under the following circumstances: (a) you are observing a religious holiday, (b) you are ill and have a note confirming this from a health care provider, or (c) you have a serious personal or family emergency and have a note confirming this from the office of the Dean of your college.

Keep in mind that if you are absent without an excuse for the day on which a homework assignment is collected, you will receive a zero for that assignment. Similarly, if you miss an exam without an excuse, you will automatically receive a zero on the exam.