

College of Natural and Mathematical Sciences MATH 300 Mathematical Logic (3,0)

Spring 2013 3 Credits

Prerequisites: Math 152 or Instructor Permission

Instructor(s): George Voutsadakis CASET Hall, Room 206-E 906-635-2667 Email: gvoutsad@lssu.edu

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
9:00-10:00	9:00-10:00	2:00-3:00	9:00-10:00	9:00-10:00

Required Texts: Logic For Mathematics and Computer Science, Stanley N. Burris

Course Description: The course will cover the syntax and the semantics of logical languages and how they interact via Tarski's definition of truth. In this context, Classical Propositional Calculus, Equational Logic and Predicate Clause Logic will be introduced. As applications of the first, classical Greek syllogisms, as applications of the second, various algebraic structures and, as applications of the latter, concepts from graph theory may be surveyed, as time permits. Depending on the computational inclinations of the audience, some algorithmic aspects may also be covered. Prerequisite: MATH 152 or Instructor Permission

<u>Course Objectives</u>: At the conclusion of MATH 300 students should be able to:

- 1. State basic definitions.
- 2. Use basic concepts from the definitions to reason about more difficult concepts.
- 3. Be able to appreciate and handle the interplay between syntax and semantics of logical languages.
- 4. Be familiar with basic metalogical concepts, such as tautology, validity, satisfiability, etc.

Grading Scale and Policies: Point and Percentage Values:

Participation and Homework	100 points	50%
A Mid-term Take Home Exam	50 points	25%
A Final Take Home Exam	50 points	25%

Total 200 points Total 100%

Grading Scale (+/- Omitted): 90-100 A, 75-90 B, 60-75 C, 50-60 D, 0-50 F

University Policies and Statements:

The Americans with Disabilities Act & Accommodations

In compliance with Lake Superior State University policies and equal access laws, disability-related accommodations or services are available to students with documented disabilities.



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If you are a student with a disability and you think you may require accommodations you must register with Disability Services (DS), which is located in the KJS Library, Room 130, (906) 635-2355 or x2355 on campus. DS will provide you with a letter of confirmation of your verified disability and authorize recommended accommodations. This authorization must be presented to your instructor before any accommodations can be made.

Students who desire such services should meet with instructors in a timely manner, preferably during the first week of class, to discuss individual disability related needs. Any student who feels that an accommodation is needed – based on the impact of a disability – should meet with instructors privately to discuss specific needs.

IPASS (Individual Plan for Academic Student Success)

If at mid-term your grades reflect that you are at risk for failing some or all of your classes, you will be contacted by a representative of IPASS. The IPASS program is designed to help you gain control over your learning through pro-active communication and goal-setting, the development of intentional learning skills and study habits, and personal accountability. You may contact 635-2887 or email ipass@lssu.edu if you would like to sign up early in the semester or if you have any questions or concerns.

Week	Dates	Monday	Wednesday	Friday
1	01/07/13	1.1	1.2	2.1
2	01/14/13	2.2	2.3	2.4
3	01/21/13	2.5	2.6	2.7
4	01/28/13	2.8	2.9	Review
5	02/04/13	3.1	3.2	3.3
6	0211/13	4.1	4.2	Review
7	02/18/13	5.1	5.2	5.3
8	02/25/13	BREAK	BREAK	BREAK
9	03/04/13	5.4	5.5	5.6
10	03/11/13	5.7	5.8	5.9
11	03/18/13	5.10	5.11	5.12
12	03/25/13	5.13	5.14	6.1
13	04/01/13	6.2	6.3	6.4
14	04/08/13	6.5	6.6	6.7
15	04/15/13	6.8	6.9	6.10

Tentative Course Outline

Students should try to **work out carefully as many of the book's Exercises as possible for practice**. The **instructor will be assigning some of these problems and, possibly, some others as formal Homeworks to be turned in at specific dates for evaluation**. These homework sets will also serve as good review exercises for the concepts and the methods that will be needed to cope with the problems assigned in **the Midterm and the Final Exams**.