

A. **Aim of Course.** We all reason, sometimes well, sometimes badly, but almost always without being self-conscious. This course aims to teach people to be self-conscious about certain aspects of their reasoning. The course will concentrate on elementary reasoning involving the so-called **Boolean** operators such as *and*, *or*, *not*, and *if-then*, and the so-called **quantifiers** such as *all* and *some*. We will not treat **probabilistic** reasoning, but only reasoning in which there is a claim that the conclusion follows with dead certainty. Various methods will be developed in order to test or establish such claims, e.g., the so-called methods of *truth tables* and *natural deduction*.

At the same time, learning about these methods will develop students' skills in *abstract* reasoning; reasoning about concepts and (simple) *theoretical* ideas. Logic is a theory of reasoning, and in learning it, students will get a feel for how theories work. This theory is a spectacular creative discovery. It provides a way to obtain a deep understanding of reasoning by simplifying actual reasoning processes in just the right way.

B. **Text and Assignments.** Required text: Klenk, **Understanding Symbolic Logic**, Prentice-Hall (5th Edition). The Klenk text is a good one. First, it divides up the material into easily manageable units. It gives you detailed assignments and makes clear exactly what is expected of you at each stage. Second, it clearly explains the material. **You will be responsible for all the reading in the text.** Third, it provides exercises, and fourth, it provides *answers* to many of the exercises assigned.

It must be emphasized here that **it is absolutely essential that you do the assigned exercises**, even though you will not be handing all of them in. Learning logic, like learning a language, is largely a matter of practice, and until you can do the exercises with some ease, you do not know the material well enough to pass the exams. In any case, you should not think of the exercises as a chore; they should be more like games, or puzzles to be solved. If you think of them this way you will probably find them interesting, and perhaps even entertaining. Whatever you do, however, be **diligent** about the assigned problems. If you consistently do well on them, you will probably get an A in the course; if you don't do them at all you will almost surely fail. Handouts will direct you precisely as to which exercises you are to do.

C. **Lectures.** These are Monday and Thursday, 2:45-4pm, in North Building C002. Topics (in terms of Units in the Klenk book) are listed on the Schedule below. Lectures will assume that you have *already* read the Unit that is the topic of the lecture.

D. **Instructor.** Daniel Addison. Email: danieladdison43@gmail.com. Office hour: Monday, 4-5pm, HW 1442a, or by appointment.

E. **Exercises.** Each Unit in Klenk directs you to a number of exercises. You should do some of each kind; you cannot master these materials without considerable practice of the sort required by the exercises. There are answers to many exercises in the back of Klenk. You may ask about exercises in lecture; it is normal to ask about exercises whose answers are given in the Klenk book, for you may not understand the *reason* for the answer. You cannot pass this course without doing exercises in preparation for the various exams. On stated days handing in some of your exercises will be mandatory; you will receive credit for this, and grading will be on "effort", not on success.

F. **Quizzes.** There will sometimes be a ten-minute quiz at the end of lecture (five in total). These quizzes count towards the final course grade.

G. **Three Standard Exams** (1 hr 15 mins). These will *only* be given only on the days scheduled.

The material in this course is *cumulative*. You must learn the earlier parts in order to go on! When you receive your exam back from your instructor, you should make sure you understand why you got wrong what you got wrong, and that you now understand how to get it right. Again: the material is cumulative. Ask your instructor about what you don't understand.

For each exam you will be provided with a practice exam before the event that will indicate the shape and nature of the exam you'll face. These are very crucial indicators of what to expect, and you would be unwise not to attempt them in studying for the exams. Some material from the practice exams may be gone over in lectures.

H. **Fourth Hour Exam.** This is offered during the Final Exam period, and plays a special role:

1. You do not need to take the fourth exam to pass the course.
2. Regardless of your grades on the first 3 exams, you will not receive better than an A- without taking and obtaining at least 75 out of 100 on the Fourth Exam. In other words, **you do have to take the Fourth Exam for it to be even possible to get an A**. There are, then, two conditions on getting an A: (1) taking the fourth exam and obtaining at least 75/100, and (2) obtaining a total final percentage for all work assessed during the semester of 92.4% or over.
3. If you take the Fourth Exam, it can only help your grade, and it cannot hurt it.
4. You may not take both the Fourth Exam and take the Final Examination.

I. **Final Examination.** There will be an optional one-hour Final Examination during the Final Examination period. This examination will cover the same material as the first three examinations. It can only help, not hurt. You may not take both the Final Examination and the Fourth Exam.

The *Fourth* Exam will be on relational predicate logic, covered in Units 17&18 of the book, the final two units of the book we'll cover in the final lectures. **You should take the Fourth exam if your grade is within shot of an A.** (You'll be able to work that out mathematically by this stage of the semester.) Again, you cannot get an A if you do not take the Fourth Exam. The *Final* Exam will only cover material in the first 16 Units. If you're *not* within shot of an A, you should take the final exam. *Both* exams are optional: if you have a passing grade after the first three exams, quizzes and homework, you've already satisfied the minimal requirements of the course. If you're happy with the grade you'll be assigned without taking either exam – again, you'll be able to work it out before these last exams are scheduled – you may take *neither* of these last two exams (neither the Fourth nor the Final).

J. **Grading.** Course grades will be on a strictly numerical basis:

90.0-92.4 = A-	92.5-97.4 = A	97.5-100 = A+
80.0-82.4 = B-	82.5-87.4 = B	87.5-89.9 = B+
	70.0-77.4 = C	77.5-79.9 = C+
	60.0-69.9 = D	
	0-59.9 = F	

The grading scheme, as indicated on the "Grade Maze" on p. 3, takes into account the following features:

1. Three standard hour exams (Max 160 points each, Max total = 480 points).
2. 10 quizzes or exercise sets (Max 6 points each, Max total = 60 points).
3. Fourth Exam: optional – if you are satisfied with maximum of A- in the course. 75 out of 100 required for A or A+ in course; in any case, it can only help and cannot hurt (Max =100 points).
5. Final examination: optional; it can only help and cannot hurt (Max = 160 points).

GRADE MAZE

Points for Quizzes and Exercises

<i>UNITS</i>	<i>POINTS</i>	<i>UNITS</i>	<i>POINTS</i>
	(Max = 6 points each)		(Max = 6 points each)
1 & 2 (Qz)	_____	9 (Ex)	_____
3 & 4 (Ex)	_____	11 (Qz)	_____
5 & 6 (Qz)	_____	12 & 13 (Ex)	_____
7 (Ex)	_____	14 & 15 (Qz)	_____
7 & 8 (Qz)	_____	15 & 16 (Ex)	_____

Q: _____ Quiz/Exercise Total (Max = 60 points)

EXAMS

A: _____ EXAM 1 (Max = 160 points)

B: _____ EXAM 2 (Max = 160 points)

C: _____ EXAM 3 (Max = 160 points)

D: _____ EXAM 4 (optional; Max = 100 points; minimum needed for A in the course is 75 points)

E: _____ FINAL EXAM (optional; Max = 160 points)

_____ Provisional grade based on **3 exams**, with a maximum course grade of A-.

Max total points = 540. Use $((Q+A+B+C) \times (100/540))$

_____ Provisional grade based on **4 exams**, needing a minimum of 75 on Exam 4 for an A.

Max total points = 640. Use $((Q+A+B+C+D) \times (100/640))$

_____ Provisional grade based on **3 exams and Final**, with a maximum course grade of A-.

Max total points = 700. Use $((Q+A+B+C+E) \times (100/700))$

_____ **Final Grade** (best of provisional grades)

SCHEDULE

The Units assigned are the chapters of Klenk, *Understanding Symbolic Logic*, 5th edition (Prentice Hall, 2008). Units must be read through and the exercises at the end of the unit attempted *before* the day the unit is covered in class. If you don't do this you will most certainly fail.

DATE	READINGS/ TOPICS	HOMEWORK / QUIZES / EXAMS taken or due in on this day
Monday, January 27	Introduction to the Course	
Thursday, January 30	Unit 1	
Monday, February 3	Unit 2	Quiz 1 (U1-2)
Thursday, February 6	Unit 3	
Monday, February 10	Unit 4	Exercises (U3&4)
Thursday, February 13	Unit 5	
Monday, February 17	College Closed	
Thursday, February 20	Unit 6	Quiz 2 (U5&6)
Monday February 24	<u>EXAM #1 (U1-6)</u>	<u>EXAM #1 (U1-6)</u>
Thursday, February 27	Unit 7	
Monday, March 2	Unit 7	Exercises (U7)
Thursday, March 5	Unit 8	
Monday, March 9	Unit 8	Quiz 3 (U7&8)
Thursday, March 12	Unit 9	
Monday, March 16	<u>EXAM #2 (U7-9)</u>	<u>EXAM #2 (U7-9)</u> , Exercises (U9)
Thursday, March 19	Unit 10	
Monday, March 23	Unit 11	Quiz 4 (U11)
Thursday, March 26	Unit 12	
Monday, March 30	Unit 13	Exercises (U12&13)
Thursday, April 2	Unit 14	

Monday, April 6	Unit 15	
Thursday, April 9	Spring Recess	
Monday, April 13	Spring Recess	
Thursday, April 16	Spring Recess	
Monday, April 20	Unit 15	Quiz 5 (U14-15)
Thursday, April 23	Unit 16	Exercises (U15&16)
Monday, April 27	Unit 16	
Thursday, April 30	Review	
Monday, May 4	<u>EXAM #3 (U10-16)</u>	<u>EXAM #3 (U10-16)</u>
Thursday, May 7	Unit 17	
Monday, May 11	Unit 18	
Thursday, May 14	Review	
Monday, May 18, 1:45-3:00pm (Optional) Exam 4 / Final Exam (see H and I above).		