FORMAL METHODS
Fall 2011
(last revised: 8 sep 2011)

COURSE	INSTRUCTOR
LING 461/661	Brendan S. Gillon
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TIME: MWF 8h35–9h25	OFFICE HOURS: t.b.a. and by appointment
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AIM OF THE COURSE:

The aim of the course is to prepare students so that they can understand the mathematics used in the literature in syntax, but especially in semantics, and acquire a degree of mathematical maturity. Stress is put on understanding fundamental concepts and doing informal proofs. Topics covered are: sets and operations on them, family of sets and operations on them, mathematical induction, relations and functions, partial orders and lattices.

COURSE MATERIAL:

- Abbott, James C. 1969 *Sets, lattices and Boolean algebras.* Prentice-Hall.

- Stoll, Robert R. 1963 *Set theory and logic.* Dover Publications.

- Gillon, Brendan S. 2008 *Introduction to sets, orders and lattices.* Unpublished manuscript.

EVALUATION: 10 problem sets (10% each)

PROCEDURES:

- NO LATE PROBLEM SETS WILL BE ACCEPTED. Each problem set must be turned in at the beginning of the class on its due date.

- NO MAKE-UP EXAMINATIONS WILL BE GIVEN to anyone who does not have a certified medical excuse.

- NO ANSWER TO ANY GRADED PROBLEM OR EXAMINATION QUESTION WILL BE RE-ASSESSED, unless:

  1. the answer is written in ink;
  2. it has not been written over; and
  3. the answer is clearly marked as such.

- Assignments and examins be written either in ENGLISH or in FRENCH.

SYLLABUS

WEEK 1 (2 Sep):

WEEK 2 (9 Sep):	sets	Stoll 1963 ch. 1.1–1.5
		Abbott 1963 ch. 2.10–2.11
		Gillon 2008 ch. 1, ch. 2
WEEK 3 (16 Sep):	informal axiomatic set theory	Abbott 1969 ch. 1
		Stoll 1963 ch. 7.1–7.5
WEEK 4 (23 Sep):	relations and functions	Abbott 1969 ch. 2.1–2.4
		Stoll 1963 ch. 1.6–1.9
		Gillon 2008 ch. 3, ch. 5, ch. 6
WEEK 5 (30 Sep):	families of sets and induction	Abbott 1969 ch. 2.14
		Stoll 1963 ch. 1.10
		Gillon 2008 ch. 4.
WEEK 6 (7 Oct):	orders	Abbott 1969 ch. 4.1–4.4
		Stoll 1963 ch. 1.11
		Gillon 2008 ch. 8
WEEK 7 (14 Oct):	algebra	Stoll 1963 ch. 8.1–8.5
		Abbott 1969 ch. 2.5–2.9
		Gillon 2008 ch. 7.5
WEEK 8 (21 Oct):	lattices	Abbott 1969 ch. 4.5–4.8
		Gillon 2008 ch. 9
WEEK 9 (28 Oct):	Boolean algebras	Abbott 1969 ch. 6.1–6.3
		Stoll 1963 ch. 6.1–6.3
		Gillon 2008 ch. 10

WEEK 10 (4 Nov):	Boolean algebras	Abbott 1969 ch. 6.4–6.5
		Gillon 2008 ch. 10
WEEK 11 (11 Nov):	Boolean algebras	Abbott 1969 ch. 6.6–6.7
		Stoll 1963 ch. 6.4–6.5
		Gillon 2008 ch. 10
WEEK 12 (18 Nov):	Boolean algebras	Abbott 1969 ch. 6.9–6.11
		Stoll 1963 ch. 6.7
		Gillon 2008 ch. 10
WEEK 13 (25 Nov):	Boolean algebra	Stoll 1963 ch. 6.6, 6.8–6.9
		Gillon 2008 ch. 10