



**UNIVERSIDAD NACIONAL AUTÓNOMA DE
MÉXICO
PROGRAMA DE POSGRADO EN
FILOSOFÍA DE LA CIENCIA**



Actividad Académica: SEMINARIO DE TEMAS SELECTOS (Non-Classical Logic and Its Applications in Philosophy)

NOTA: ESTE SEMINARIO SERÁ IMPARTIDO EN INGLÉS.

Clave:	Semestre: 2014-1	Campo de conocimiento: FC, FCC, FMLM				
Carácter: Obligatoria () Optativa (X) de Elección ()			Horas por semana		Horas al semestre	No. Créditos : 8
Tipo: Teórica			Teóricas:	Prácticas :	64	
			4	0		
Modalidad: Presencial		Duración del programa: 1 semestre				

Seriación: Si () No (x) **Obligatoria** () **Indicativa** ()

Introducción:

Non-classical logics play an important role in many contemporary discussions in analytic philosophy. Modal logic provides the necessary precision for the many worlds-debate, conditional and relevant logics are used to study the nature of implication, and paraconsistent logics help us reason in the presence of inconsistent information. Moreover, non-monotonic logics help us understand defeasible inferences: conclusions drawn tentatively, reserving the right to retract them in the light of further information.

The aim of this course is to acquaint the students with the formalities underlying these philosophical investigations, and to point to the necessity of these formal systems for understanding debates between contemporary analytic philosophers in a clear and precise way. Students will get a flavor of how advances in non-classical logic have been essential for some advances in philosophy in the 20th and 21st centuries.

The course will be taught in English, but the exam and exercises may be made in Spanish (cfr. infra).

Objetivo general:

- Illustrate that 'logic' is more than classical logic. Philosophers make use of many different logical systems, all of which have their specific contexts of application. Many of these systems deviate from classical logic.
- Familiarize the student with the most important kinds of non-classical logics.
- Show the importance of non-classical logic to philosophy. Each system will be introduced in the context of a specific philosophical debate or problem.

Objetivos específicos:

After taking the course, students will be able to use and reflect on the following non-classical methods and their relation to philosophical problems:

- 1) Tableaux methods for classical logic and problems with the material conditional.

- 2) Basic modal logic: modal tableaux, possible worlds and the realism/actualism debate.
- 3) Non-normal modal logics and strict implication.
- 4) Conditional logic, relevant logic, and implication in natural language.
- 5) Intuitionist logic and its foundations in the philosophy of mathematics.
- 6) Many-valued logic, paraconsistent logic, and the possibility of true contradictions.
- 7) Non-monotonic logic: understanding defeasible inference.

For topics 1-6 we follow the presentation in Priest, 2008. For topic 7, we use a number of research papers providing a good idea of the power of non-monotonic logics.

Contenido Temático			
Unidad	Temas	Horas	
		Teóricas	Prácticas
1	Tableaux methods for classical logic and problems with the material conditional	7	
2	Normal modal logic: modal tableaux, possible worlds, and the realism/actualism debate	7	
3	Non-normal modal logics and strict conditionals	7	
4	Conditional logics	7	
5	Making logic constructive: intuitionist logic	7	
6	Adding more truth-values: many-valued logic	7	
7	Combining non-normal worlds with many values: logics with gaps, gluts, and worlds	7	
8	More conditionals: first degree entailment and relevant logic	7	
9	Understanding defeasible inference: non-monotonic logic	8	
	TOTAL	64	

Bibliografía y actividades:

Primary course material:

- Batens, D. A Universal Logic Approach to Adaptive Logics, in *Logica Universalis* (vol. 1, 2007, pp. 221-242).
- Horty, J. Skepticism and Floating Conclusions, in *Artificial Intelligence* (vol. 135, 2002, pp. 55-72).
- Horty, J. Reasons as Defaults, in *Philosopher's Imprint* (vol. 7(3), 2007, pp. 1-28).
- Priest, G. *An Introduction to Non-Classical Logic*, 2nd Edition (Cambridge University Press, 2008).

Further reading:

- Anderson, A. and Belnap, N.D. *Entailment: The Logic of Relevance and Necessity, Volume 1* (Princeton University Press, 1975).
- Anderson, A. and Belnap, N.D. *Entailment: The Logic of Relevance and Necessity, Volume 2* (Princeton University Press, 1992).
- Cresswell, M.J. and Hughes, G.E. *A New Introduction to Modal Logic* (Routledge, 1996).
- Ginsberg, M. *Readings in Nonmonotonic Reasoning* (M. Kaufmann Publishers, 1987).
- Heyting, A. *Intuitionism. An Introduction* (North-Holland Publishing Co., 1971).
- Loux, M (ed.). *The Possible and the Actual. Readings in the Metaphysics of Modality* (Cornell University Press, 1979).
- Lewis, D. *On the Plurality of Worlds* (Blackwell, 1986).
- Makinson, D. *Bridges from Classical to Nonmonotonic Logic* (King's College Publications, 2005).
- Priest, G. *In Contradiction. A Study of the Transconsistent*, 2nd Edition (Oxford University Press, 2006).
- Read, S. *Thinking About Logic. An Introduction to the Philosophy of Logic* (Oxford University Press, 1995).

Medios didácticas: Exposición profesor(a) (x) Exposición alumnos () Ejercicios dentro de clase (x) Ejercicios fuera del aula (x) Lecturas obligatorias (x) Trabajo de investigación () Prácticas de campo () Otros: _____ ()	Métodos de evaluación: Exámenes o trabajos parciales () Examen o trabajo final escrito (x) Trabajos y tareas fuera del aula (x) Exposición de alumnos () Participación en clase (x) Asistencia () Prácticas () Otros: _____ ()
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Evaluación y forma de trabajo

The course will be evaluated by means of (written) exercises and a written exam.
Exercises and exam may be written in English or Spanish.

Imparte: Dr. Mathieu Beirlaen

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HORARIO PROPUESTO:

LUNES Y MIÉRCOLES 16 A 16hrs.