Philosophy 3131: Formal Logic II

University of Central Florida
Spring Semester 2018

Instructor: Derek Green   *Office*: PSY 235
Email: derekagreen@ucf.edu   *Phone*: (407) 823-3239   (note: if not urgent, please contact via email or by attending office hours)
Course Meeting Times: Mondays, Wednesdays, and Fridays, 1:30-2:20
Course Meeting Location: HEC 0111
Office Hours: Mondays and Wednesdays, 2:30-3:30

Course Catalog Description
Systematic study of propositional and first-order predicate logic; logistic systems and axiomatic methods; problems of metatheory, including completeness, consistency, and decidability.

Course Policies
1) *Academic Conduct Policy*. All members of the academic community at UCF are expected to practice and uphold standards of academic integrity and honesty. "Academic integrity" means representing oneself and one's work honestly. Misrepresentation is cheating, since it involves claiming credit for ideas and work not actually one's own and thus trying to attain a certain academic evaluation without actually earning it. Here are some examples of academic dishonesty:

a) Plagiarizing the work of others. UCF's Golden Rule defines plagiarism as follows: "whereby another's work is used or appropriated without any indication of the source, thereby attempting to convey the impression that such work is the student's own." Whether students have read or heard the information used, they must document the source of the information. When dealing with written sources, a clear distinction should be made between quotations (which reproduce the information word-for-word within quotation marks) and paraphrases (which digest the source of information and provide it in the students own words). Both direct quotations and paraphrases must be documented. Even if students rephrase, condense, or select from another person's work, the ideas are still the other person's, and failure to give credit constitutes misrepresentation of the student's actual work and plagiarism of another's ideas. Buying a paper or taking information from the internet without attribution and handing it in as one's own work is, in fact, plagiarism.

b) Falsifying records or providing misinformation regarding one's credentials.

c) Unauthorized collaboration on computer assignments and unauthorized access to and use of computer programs, including modifying computer files created by others and representing that work as one's own.

2) *Completion of Required Work*. Completion of all exams is necessary in order to pass the course. (See "Evaluation" below.)

3) *Excused Absences*. Attendance and participation directly determine a portion of the grade in this course. Students are obligated to inform their instructors of dates they will miss class due to an excused absence prior to those anticipated dates. For activities such as athletic competitions whose schedules are known prior to the start of a term, students must provide their instructors during the first week of each term a written schedule showing days they expect to miss class. For other university excused absences, students must provide each instructor at the earliest possible time the dates they will miss. To do this, please fill out the electronic Absence Form. You can find a link to this form in the repository on our Webcourses site.

4) *Deadline Extensions*. Things come up, and none of us are totally rock-solid. I understand this. Thus, I'm happy to consider extensions for family emergencies, medical emergencies, and other serious unanticipated

events. (Although certain assignments may come at very busy times in your semester, I am unlikely to grant any extension requested for this reason. In the normal course of events, students are expected to plan ahead and budget for the busiest times of the semester.) <u>Only those extensions requested 36 hours or more before the specified due date can be considered.</u> The length of extensions will be determined by the factors involved in your need for it. To request an extension, please submit the aforementioned Absence Form.

5) *Add/Drops.* UCF's policy will be explicitly followed. It is the student's responsibility to be aware of deadline dates for dropping, entering, and remaining in courses. To assist you, however, I've included the following:

Last day to drop a course and request a full refund or swap course enrollment: Thursday, January 11, 11:59pm

Payment deadline: Friday, January 19

6) *Office Hour Policies.* Most of the time, you'll be able to drop by office hours whenever you want, no appointment required. I will notify the class if anticipated or actual demand requires a change to this policy. If you cannot come to a scheduled session of office hours, we can try to devise a time that will work for both of us.

7) *In-Classroom Conduct – General.* Philosophy requires the discussion of controversial ideas. Everyone should feel comfortable voicing their reasoned assessments of these ideas. Therefore, it's essential that we maintain a respectful academic environment in the classroom. No derogatory or discriminatory speech acts will be permitted.

If you have any questions about what this entails, feel free to contact me. (Please also see section 10 below.)

8) *In-Classroom Conduct – Electronic Devices.* Since I want you to engage with the material through discussion and concentration on the lectures, use of laptops and smartphones during class is prohibited. Note-taking is indeed a good idea, but you should use paper and a writing utensil. Notes: 1) It's fine to keep your cellphone on with the ringer silenced. You just can't look at it. I recommend stowing it in your bag. 2) If you have a documented condition that conflicts with this policy, see "Accessibility and Accommodation" below.

9) *Accessibility and Accommodation.* The University of Central Florida is committed to providing access and inclusion for all persons with disabilities. This syllabus is available in alternate formats upon request. Students with disabilities who need specific access in this course, such as accommodations, should contact the professor as soon as possible to discuss various access options. Students should also connect with <u>Student Accessibility Services</u> (Ferrell Commons, 7F, Room 185, <u>sas@ucf.edu</u>, phone (407) 823-2371). Through Student Accessibility Services, a Course Accessibility Letter may be created and sent to professors, which informs faculty of potential access and accommodations that might be reasonable.

10) *Diversity and Inclusion.* The University of Central Florida considers the diversity of its students, faculty, and staff to be a strength and critical to its educational mission. UCF expects every member of the university community to contribute to an inclusive and respectful culture for all in its classrooms, work environments, and at campus events. Dimensions of diversity can include sex, race, age, national origin, ethnicity, gender identity and expression, intellectual and physical ability, sexual orientation, income, faith and non-faith perspectives, socio-economic class, political ideology, education, primary language, family status, military experience, cognitive style, and communication style. The individual intersection of these experiences and characteristics must be valued in our community.

Title IX prohibits sex discrimination, including sexual misconduct, sexual violence, sexual harassment, and retaliation. If you or someone you know has been harassed or assaulted, you can find resources available to support the victim, including confidential resources and information concerning reporting options at <u>www.shield.ucf.edu</u> and <u>http://cares.sdes.ucf.edu/</u>.

If there are aspects of the design, instruction, and/or experiences within this course that result in barriers to your inclusion or accurate assessment of achievement, please notify the instructor as soon as possible and/or contact Student Accessibility Services.

For more information on diversity and inclusion, Title IX, accessibility, or UCF's complaint processes contact:

- Title IX – OIE - http://oie.ucf.edu/ & askanadvocate@ucf.edu

- Disability Accommodation – Student Accessibility Services - http://sas.sdes.ucf.edu/ & sas@ucf.edu

- Diversity and Inclusion Training and Events – www.diversity.ucf.edu

- Student Bias Grievances – Just Knights response team - http://jkrt.sdes.ucf.edu/

- UCF Compliance and Ethics Office - http://compliance.ucf.edu/ & complianceandethics@ucf.edu

- Ombuds Office - http://www.ombuds.ucf.edu

11) *Classroom safety*. Instructors and staff at UCF take classroom safety very seriously. In the event of an emergency, please follow all orders from the instructor (if the instructor is available to give orders). For a complete statement of UCF's emergency procedures, please visit our emergency preparedness site at http://emergency.ucf.edu/.

Sources

The textbook for our course is Graham Priest's Introduction to Non-Classical Logic: From Ifs to Is (ISBN 9780521670265). The readings marked "P" on the schedule are in this book. At various points, I'll be assigning outside readings, which will be made available on our Webcourses site. For full bibliographic data, see "Course Bibliography" below.

Evaluation

The grade will be determined by the percentage of possible points you earn on the various assignments (see below). The percentages correspond to letter grades as follows:

A grades	C grades	F grades
A: 93.34-100%	C+: 76.67-79.99	<59.99
A-: 90-93.33	C: 73.34-76.66	
	C-: 70-73.33	
B grades		
B+: 86.67-89.99	D grades	
B: 83.34-86.66	D+: 66.67-69.99	
B-: 80-83.33	D: 63.34-66.66	
	D-: 60-63.33	

Late submissions (without documented excuse) will suffer the following standardized penalties…

Submission 0-24 hours after due date: 10 percentage points
…24h1m-48 hours after due date: 20 percentage points.
…48h1m-72 hours after due date: 30 percentage points
(and so on)

Even if you've already missed a deadline so much that you will not receive any points on an exam, you must complete the exam to pass the course. See section 2 in "Course Policies" above.

Syllabus Quiz (2% of final grade). This quiz covers only the information you're provided on this syllabus. It is assigned in order to give students the opportunity to confirm their enrollment in the course. You can find it on the course Webcourses site. Please complete it as soon as possible; you're required to complete it by 5pm on January 12.

Problem Sets (48%). These are assigned periodically throughout the course. They're to be completed on your own time outside of class hours. Your lowest-scoring problem set will be dropped (i.e., not factored in to the calculation of your final grade). As the course schedule below will reveal, problem sets will generally be due at the beginning of class on Fridays. Each problem set will be available 5-7 days before it's due.

In-Term Exams (30% of the final grade): There are three of these, each worth 10% of the final grade. Each exam will occupy the entire period in which it takes place. They will be closed-book; no consultation with outside sources will be allowed. When you complete an exam, you will be allowed to leave the classroom.

Final Examination (20% of the final grade): This exam will occupy the final examination period assigned to this course. You'll receive much more information about this exam closer to the end of the term.

*Course Schedule**
(Note: the listed "Reading" is to be done *before* the session under which they are listed. Exams will take place in the session in which they are listed.)

Date	Topic	Reading	Graded Work Due/ Conducted
Jan 8	Course Introduction	Read the syllabus	Complete the syllabus quiz ASAP to confirm your academic activity
	Unit I: Basics; Refresher		
Jan 10	Basic Concepts	P, Ch. 0	
Jan 12	Truth Tables	See PPT on Canvas after lecture	Due: Syllabus Quiz
Jan 15	MLK Day – No Class		
Jan 17	Tables, Cont'd: Truth Trees	P, 1.1-1.4; Teller, "A Modern Formal Logic Primer," chapter 8 (Webcourses)	
Jan 19	Truth Trees, Cont'd	P, 1.5	Due: Problem Set 1
Jan 22	Truth Trees and Metalogical Concepts	none	

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* The course schedule is subject to change due to professional reasons, rate of progress through the material, prohibitive weather, illness, and personal emergency. I will update all enrolled students as these changes occur.

Jan 24	Introductory FL Exam	Review for exam	Introductory FL Test
	Unit II: Modality		
Jan 26	Conceptual Introduction	P, 2.1-2.3, 2.5-2.8	Due: Problem Set 2
Jan 29	*K*	P, 2.4	
Jan 31	*K*	none	
Feb 2	Enriching *K*	P, 3.1-3.4	Due: Problem Set 3
Feb 5	TBD	TBD	
Feb 7	*S5*	P, 3.5	
Feb 9	Natural Deduction	Teller, chapter 5 [Webcourses]	
Feb 12	Natural Deduction for *S4* and *S5*	[Webcourses]	Due: Problem Set 4
Feb 14	Review Day	Come prepared with questions	
Feb 16	Standard ML Exam	Review for exam	Standard ML Exam
Feb 19	Increasing Subtlety on Conditionals	P, 1.6-1.10	
Feb 21	The Strict Conditional	P, 4.5-4.9	
Feb 23	*C*	P, 5.1-5.6, 5.8-5.10	
Feb 26	*C*(ont'd)	P, 5.8-5.10, postscript to Appendix	
	Unit III: Intuitionist Logic		
Feb 28	Concepts and Motivations	P, 6.1-6.3, 6.5; Haack, chapter 4 [Canvas]	Due: Problem Set 5
Mar 2	Tableau	P, 6.4	
Mar 5	The Intuitionist Conditional	P, 6.6	
	Unit IV: Trivalence		
Mar 7	Concepts	P, 7.1-7.2	
Mar 9	Languages	P, 7.3-7.4	Due: Problem Set 6
Mar 12	Enjoy Spring Break!		
Mar 14	Enjoy Spring Break!		
Mar 16	Enjoy Spring Break!		
Mar 19	Motivation from Paradox	P, 7.5-7.10	
	Unit V: *n*-Valence		
Mar 21	Heaps	P, 11.1-11.3	
Mar 23	Logic with Infinitely Many Values	P, 11.4, 11.5	Due: Problem Set 7
Mar 26	TBD	TBD	
Mar 28	Logical Extensions Exam		Logical Extensions Exam
	Unit VI: Proof, Truth, and Thought		
	A. Gödel		
Mar 30	Background on Sets and Predicates	Reread P, chapter 0	
Apr 2	Incompleteness Proofs	Raatikainen, sections 1 and 2 [link on Webcourses]	
Apr 4	Incompleteness Proofs, cont'd	Raatikainen, 3 (through 3.2) and 4	
Apr 6	Incompleteness Proofs, cont'd	None	Due: Problem Set 8
	B. What's Truth, Anyway?		
Apr 9	Correspondence and some Discontents	Walker [Webcourses]	

Apr 11	Deflationism	Hodges [link on Webcourses]	
Apr 13	Deflationism, Cont'd	TBD	
	C. …Or a Rule, for That Matter?		
Apr 16	Rails to Infinity	TBD	Due: Problem Set 9
Apr 18	Rails to Infinity?	Wittgenstein, *Philosophical Investigations*, sections 201-242 [Webcourses]	
Apr 20	TBD	TBD	
Apr 23	Review and Course Conclusion	Come prepared with questions	Due: Problem Set 10
Apr 30, 1-3:50pm	Final Examination	Study for exam	Final examination

Course Bibliography

Haack, Susan. 1996. *Deviant Logic, Fuzzy Logic: Beyond the Formalism.* Revised Edition. Chicago: University of Chicago Press.

Hodges, Wilfrid. 2014. "Tarski's Truth Definitions." *Stanford Encyclopedia of Philosophy*, https://plato.stanford.edu/entries/tarski-truth/.

Priest, Graham. 2008. *An Introduction to Non-Classical Logic: From If to Is.* Second Edition. Cambridge, UK: Cambridge University Press.

Raatikainen, Panu. 2015. "Godel's Incompleteness Theorems." *Stanford Encyclopedia of Philosophy*, https://plato.stanford.edu/entries/goedel-incompleteness/

Teller, Paul. 1989. *A Modern Formal Logic Primer: Predicate Logic and Metatheory, Volume I.* available online.

Walker, Ralph C. S. 1999. "Theories of Truth." *A Companion to the Philosophy of Language.* Edited by Bob Hale and Crispin Wright. Cambridge, UK: Blackwell.

Wittgenstein, Ludwig. 2001 [1953]. *Philosophical Investigations.* Revised edition. Edited and translated by GEM Anscombe and R. Rhees. Cambridge, UK: Wiley-Blackwell.