

Term Information

Effective Term Spring 2014

General Information

Course Bulletin Listing/Subject Area Philosophy
Fiscal Unit/Academic Org Philosophy - D0575
College/Academic Group Arts and Sciences
Level/Career Graduate
Course Number/Catalog 8510
Course Title Seminar in Topics in Logic
Transcript Abbreviation Sem Topics Logic
Course Description Selected topics in logic and philosophy of logic; topics vary.
Semester Credit Hours/Units Variable: Min 1 Max 4

Offering Information

Length Of Course 14 Week, 7 Week, 4 Week (May Session), 12 Week (May + Summer)
Flexibly Scheduled Course Never
Does any section of this course have a distance education component? No
Grading Basis Letter Grade
Repeatable No
Course Components Seminar
Grade Roster Component Seminar
Credit Available by Exam No
Admission Condition Course No
Off Campus Never
Campus of Offering Columbus

Prerequisites and Exclusions

Prerequisites/Corequisites Grad standing in Philos, or permission of instructor.
Exclusions

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code 38.0101
Subsidy Level Doctoral Course
Intended Rank Doctoral

Quarters to Semesters

Quarters to Semesters

New course

Give a rationale statement explaining the purpose of the new course

The purpose of this course is to present some research issues in logic and philosophical logic. It is aimed at bringing graduate students up to the frontiers of research in specific areas of logic.

Sought concurrence from the following Fiscal Units or College

Requirement/Elective Designation

The course is an elective (for this or other units) or is a service course for other units

Course Details

Course goals or learning objectives/outcomes

Content Topic List

- Non-classic logic
- Modal logic
- Computability and logic
- Godel's incompleteness theorems

Attachments

- 8510 sample syllabus I.docx
(Syllabus. Owner: O'Keeffe,Susan B)
- 8510 sample syllabus II.docx
(Syllabus. Owner: O'Keeffe,Susan B)

Comments

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	O'Keeffe,Susan B	04/25/2013 08:28 AM	Submitted for Approval
Approved	Hubin,Donald Clayton	04/25/2013 08:30 AM	Unit Approval
Approved	Heysel,Garett Robert	05/20/2013 12:05 PM	College Approval
Pending Approval	Nolen,Dawn Jenkins,Mary Ellen Bigler Vankeerbergen,Bernadette Chantal Hogle,Danielle Nicole Hanlin,Deborah Kay	05/20/2013 12:05 PM	ASCCAO Approval

d. weeks 6-7 a taste of intuitionistic mathematics (arithmetic, constructive analysis)
assignments: homework exercises

2. Relevance and paraconsistent logic

a. weeks 8-9 the logics logic
reading: Anderson, Belnap, Dunn; Read (Carmen); Mares
assignments: homework exercises and short essays

b. week 10 the debate
reading: Burgess v. Read; Tennant; Burgess v. Tennant (Carmen)
assignments: short essay

3. Second-order logic

a. weeks 11-12 pro
reading: Shapiro (Carmen)
assignments: homework exercises

b. weeks 13-14 contra
reading: Quine, Resnik, Wagner, Jané (Carmen)
assignments: short essay

Evaluation

Homework. From time to time, exercises on the various logical material will be assigned. 15% of final mark

Brief Essays. Some weeks, a brief essay (500 words) will be assigned, on a specific topic, especially when we are considering philosophical material. 15% of final mark.

Seminar paper and commentary. I intend to run the course in seminar format. Each week, starting the second or third, one student will prepare a discussion paper, on some material from the course, and present it to the class. The paper should be distributed in advance, at least 72 hours before the class where it is to be presented. Another student will prepare and present a commentary on that paper (which can be distributed in class). The seminar paper is 20% of the final mark, and the commentary is 10%.

Term paper. Due during Finals week. You *must* clear a topic with me by the end of the twelfth week. 30% of final mark.

Intangibles. Class participation, getting help when needed, etc. 10% of final mark.

Academic Misconduct

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct <http://studentlife.osu.edu/csc/>.

Disability Services

Students with disabilities that have been certified by the Office for Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office for Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; telephone 292-3307, TDD 292-0901; <http://www.ods.ohio-state.edu/>.

PROPOSED SYLLABUS II

PHILOSOPHY 8510

SEMINAR IN TOPICS IN LOGIC

Instructor: Stewart Shapiro
Office: 350E University Hall
Hours: Monday and Wednesday 3:00-4:00 (almost always available after class)
Material: *Computability and logic*, fifth edition, by George S. Boolos, John P. Burgess, and Richard C. Jeffrey
Articles available on Carmen

Course Description

This course will cover the concept of computability, and its relation to formal deduction. We will define and prove some basic results concerning Turing machines, such as the undecidability of the halting problem, and we will discuss the philosophical aspects of Church's thesis, the statement that a function is computable, in the intuitive sense, just in case it is computable by a Turing machine. After a review of basic logic, we will prove Church's theorem, that the set of valid (or provable) first-order logical truths is undecidable. The course will culminate with proofs of Kurt Gödel's celebrated incompleteness theorems. We will explore some of the alleged ramifications of those theorems concerning epistemology and the mind.

Evaluation will consist of weekly exercises, some short essays on the philosophical material, a take home final examination, and a term paper.

Prerequisite: Philosophy 5550 (650), or equivalent.

Tentative Schedule

- Weeks 1-2. The basics of computability: Turing machines, enumerability, the halting problem
Reading: Boolos, Burgess, Jeffrey, Chapters 1-4
assessment: exercises
- Weeks 3-4. Recursion, recursive functions, decidability
Reading: Boolos, Burgess, Jeffrey, Chapters 6-7, possibly 8
assessment: exercises
- Week 5. Church's thesis and its philosophical status
Reading: various articles posted to Carmen
assessment: a short essay (600-800 words)
- Week 6. Review of first-order logic: syntax, deduction, semantics

Reading: Boolos, Burgess, Jeffrey, Chapters 9-10
assessment: exercises

Weeks 7-8. Church's theorem: the undecidability of first-order logic
Reading: Boolos, Burgess, Jeffrey, Chapter 11
assessment: exercises

Weeks 9-10. Basic model theory: The Löwenheim-Skolem theorems and compactness
Reading: Boolos, Burgess, Jeffrey, Chapter 12
assessment: exercises

Week 11. Philosophical fallout of the limitative theorems (if there is any)
Reading: various articles posted to Carmen
assessment: a short essay (600-800 words)

Weeks 12-13. Gödel's incompleteness theorems
Reading: Boolos, Burgess, Jeffrey, Chapters 15-17, possibly 18
assessment: exercises

Week 14. What the incompleteness theorems say about rationality (and other things)
Reading: various articles posted on Carmen
assessment: group discussion

Evaluation

Homework. The exercises assigned will constitute 30% of the final mark

Brief Essays. The brief essays, listed above, will constitute 20% of final mark.

Final Examination (take home). This will consist of exercises from various parts of the course and a short essay. It will constitute 20% of the final mark.

Term paper. Due during Finals week. You *must* clear a topic with me by the end of the twelfth week. 20% of final mark.

Intangibles. Class participation, getting help when needed, etc. 10% of final mark.

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