

## LECTURE SCHEDULE

1st, 2nd, & FINAL PAPER DUE- DATES MARKED IN RED

### Week 1

**TUE 28 JAN** No Reading

*Kant: how can mathematics be "synthetic a priori"? (and what's that supposed to mean?)*

**THU 30 JAN** Hempel "Geometry & Empirical Science"

*Geometry, at least, can't really. Let's stick to the philosophy of arithmetic henceforth.*

### Week 2

**TUE 04 FEB** Hahn "The Crisis in Intuition"

*Why rigorization became a major project for 19th century mathematics.*

**THU 06 FEB** Poincaré "The Nature of Mathematical Reasoning" (B&P 394-402)

*It all comes down to the question of the status of the principle of mathematical induction.*

### Week 3

**TUE 11 FEB** Frege "The Concept of Number" (B&P 130-159)

*Frege's attempt to show arithmetic, including induction, is analytic. Its partial success.*

**THU 13 FEB** Russell *Introduction to Mathematical Philosophy* (B&P 160-182)

Hempel "The Nature of Mathematical Truth" (B&P 377-393)

*Frege's ultimate failure, Russell's attempt to do better, and what it was supposed to show.*

### Week 4

**TUE 18 FEB** Ayer "The A Priori" (B&P 315-328)

*Do we really need the logicist project to show mathematics is analytic?*

**TUE 20 FEB** Heyting "Intuitionist Foundations" (B&P 52-50)

Brouwer "Consciousness, Philosophy, Mathematics (B&P 90-96)

*The intuitionist challenge in its original, almost solipsistic "Amsterdam" version.*

### Week 5

**TUE 25 FEB** Dummett "The Philosophical Basis of Intuitionistic Logic" (B&P 97-129

[but students may stop reading at page 109])

*The same challenge in its revised, almost behavioristic "Oxford" version.*

**THU 27 FEB** Carroll "What the Tortoise Said to Achilles"

### Week 6

**TUE 04 MAR** Hilbert "On the Infinite" (B&P 183-201)

von Neumann "Formalist Foundations (B&P 61-65)

*A clever idea for getting the best of both worlds (logicism and intuitionism).*

**THU 06 MAR** Newman/Nagel "Gödel's Proof" [this reading optional]

*The downfall of formalism: Gödel's theorem.*

## Spring Break

### Week 7

**TUE 18 MAR** Lucas "Minds, Machines, Gödel"

*Does Gödel's theorem have consequences for philosophy of mind?*

**THU 20 MAR** Boolos "The Iterative Conception of Set" (B&P 486-502)

*The "foundation" for mathematics eventually adopted after the demise of the 3 schools*

### Week 8

**TUE 25 MAR** Gödel "What Is Cantor's Continuum Problem?" (B&P 470-485)

*Gödel's own response to his theorem*

**THU 27 MAR** Bernays "On Platonism in Mathematics" (B&P 258-271)

*Turning from the nature of mathematic truth to that of mathematical objects*

### Week 9

**TUE 01 APR** White "The Locus of Mathematical Reality"

*On view popular among amateur philosophers: they are mental entities.*

**THU 03 APR** Benacerraf "Mathematical Truth" (B&P 403-420)

*Another view (nominalism): They don't exist at all!*

### Week 10

**TUE 08 APR** Colyvan "Indispensability Arguments"

*One kind of anti-nominalism.*

**THU 10 APR** Baker "Are There Genuinely Mathematical Explanations?"

*An idiosyncratic response.*

### Week 11

**TUE 15 APR** Burgess "Why I Am Not a Nominalist" [Appendix only]

*Claims that mathematics is dispensable after all.*

**THU 17 APR** Carnap "Empiricism, Semantics, Ontology" (B&P 72-81)

*Another kind of anti-nominalism.*

### Week 12

**TUE 22 APR** Benacerraf "What Numbers Could Not Be" (B&P 272-294)

*Structuralism: a view neither "platonist" nor nominalist.*

**THU 24 APR** Wigner "The Unreasonable Effectiveness of Mathematics"

*Back to the question from which we started, having learned a few things along the way.*

**TUE 06 MAY** Dean's Date

Note: B&P stands for Benacerraf & Putnam (editors) *Philosophy of Mathematics: Selected Readings*, our required textbook.