

Syllabus for Frontiers 100.20: *Contemplating Infinity*

Description In this class, we will adapt traditional Buddhist meditation techniques to contemplate questions surrounding the infinite. The primary goal of this course is to teach students how to perform *analytical meditation*. This is a form of meditation in which an idea is processed using an interplay of analytical and intuitive approaches. As such, it has the potential to provide both technical and intuitive insights into a question. We will apply this technique to the study of the infinite, beginning with a technical mathematical approach and gradually joining the technical understanding with a deeper probing of meaningful questions. In particular, we will follow our mathematical discussion with an in-depth examination of the paradoxes of Zeno and finish with contemplations on impermanence and the Buddhist notion of emptiness.

Instructor

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Teaching Assistant:

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Textbooks

Buddhist Meditation, Tranquility, Imagination and Insight by Kamalashila

Zeno's Paradoxes ed. by Wesley Salmon

Objectives By the end of the course, students should

1. Have established a daily meditation practice
2. Be able to apply analytical meditation to engage with difficult topics
3. Be able to recognize, define, describe and engage in:
 1. Deep, focused, analytic thinking: thorough, sustained investigation of and reflection upon an individual idea, text, object or experience in all its complexity;
 2. Broad, connective, synthetic thinking: recognizing and developing relationships between and among disparate ideas, texts, objects and/or experiences;
 3. Effective communication of ideas, beliefs, observations, and/or analysis resulting from such focused and connective thinking.

Calm-Abiding Meditation The practice of calm-abiding meditation (*shamatha* in Sanskrit) is the foundation for doing analytical meditation. As such, you will be required to establish a daily meditation practice. In the first week, you will be asked to meditate for 5 minutes each day excluding weekends. By the end of the semester, you should be meditating for 50 minutes each day.

In order to support your practice, you are strongly encouraged to purchase your own meditation cushion and mat. I will say more about this in class.

Finally, in order to deepen your basic practice, I will ask everyone to commit to attending one daylong meditation retreat, either on-campus or with a local group. I will also ask you to participate in a meditation event at the end of the semester with students from another Frontiers section. I will provide you with dates and venues shortly.

Analytical Meditation Our main tool for approaching the infinite will be the practice of analytical meditation. In analytical meditation, we will usually take a simple question as our object. For example, we might work with the question “can you do infinitely many things in a finite amount of time?” We then repeat the question to ourselves silently for a period, without trying to analyze it or respond to it. Following that, we engage with the question conceptually. Finally, we rest our minds in whatever insights we have gained.

Readings I will ask you to read something before almost every class. I will do very little lecturing in this class; the expectation will be that you've read the appropriate material and are prepared to engage in a discussion about it.

Journals I will ask you to keep a journal for the course with two types of entries. The meditation entries will be very short records of your calm-abiding meditation sessions. At a minimum, they should indicate where you were, who was with you, and how long you practiced. You can also include any interesting experiences you may have had, but are not obligated to. I will also ask you to write down your insights from our analytical meditation sessions.

The journals will be collected and graded periodically. The grade will be based on completeness.

Homework While we are studying the mathematics of infinity, I will assign and collect weekly homework.

Math Exam We will have an exam at the end of our study of the mathematics of infinity.

Reflection Papers Toward the end of the semester, I will ask you to write two short 4-6 pages reflection pieces. The first will be about Zeno's Paradox and the second will be about impermanence and the Buddhist notion of emptiness.

Tentative Schedule

Unit 1: Meditation

Date	Topic	Reading
8/25	Introduction	
8/27	Shamatha	<i>Buddhist Meditation</i> , Chapter 1
8/29	Meditation instruction	<i>B. Meditation</i> , Chapters 3,4
9/3	Vipashyana	<i>B. Meditation</i> , Chapter 6
9/5	Meditation Instruction	<i>B. Meditation</i> , Chapter 8 and Appendix 2

Unit 2: Mathematical Infinity

Date	Topic	Reading	Assignment Due
9/8	Introduction	Infinity Intro	Journal 1
9/10	Cantor 1	Cantor1	
9/12	Cantor 2	Cantor2	
9/15	Cantor 3	Cantor3	Math Homework 1
9/17	Paradoxes 1	Paradox1	
9/19	Paradoxes 2	Paradox2	
9/22	Paradoxes 3	Paradox3	Journal 2
9/24	Infinite series 1	Series1	Math Homework 2
9/26	Infinite series 2	Series2	
9/29	Fractals	Fractals	
10/1	Lowenheim-Skolem Theorem	LST	
10/3	The Hydra	Hydra	Math Homework 3
10/6	Math Exam		Journal 3

Unit 3: Zeno

Date	Topic	Reading	Assignment Due
10/8	Intro	Salmon, pp. 5—12	
10/10	Russell	Salmon, pp. 45—58	

10/13	Bergson	Salmon, pp. 59—66	
10/15	Rusell and Bergson		
10/20	Black	Salmon, pp. 61—74 (read first paragraph on pg. 74)	Journal 4
10/22	Black	Salmon, pp. 74—81	
10/24	Wisdom	Salmon, pp. 82—88	
10/27	Thomson 1	Salmon, pp. 89—95 (up to first paragraph)	
10/29	Thomson 1	Salmon, pp. 95—102	
10/31	Benacerraf	Salmon, pp. 103—113	
11/3	Benacerraf	Salmon, pp. 113—122	Journal 5
11/5	Benacerraf	Salmon, pp. 122—129	
11/7	Thomson 2	Salmon, pp. 130—138	
11/10	Owen	Salmon, pp. 139—149	
11/12	Owen	Salmon, pp. 149—156	
11/14	Owen + Meditation	Salmon, pp. 156—163	

Unit 4: Emptiness

Date	Topic	Reading	Assignment Due
11/17	Introduction	EmptinessIntro	Journal 6
11/19	Impermanence	Imp1	
11/21	Impermanence	Imp2	
11/24	Interdependence	Int1	Paper 1
12/1	Interdependence	Int2	
12/3	Interdependence	Int3	
12/5	Tying in to Zeno, etc.		Journal 7
12/12			Paper 2