RESEARCH OPPORTUNITY PROGRAM
299Y PROJECT DESCRIPTIONS 2019-2020
FALL/WINTER

Name and Title: Hakob Barseghyan, Assistant Professor
Department: Institute for the History and Philosophy of Science and Technology

TITLE OF RESEARCH PROJECT: Topics in the Theory of Scientific Change

Number of 299Y Spots: 3  Number of 399Y Spots: 3

OBJECTIVES AND METHODOLOGY:
In this project, we will seek solutions to a number of topical issues in the general descriptive theory of scientific change (TSC). The student researcher will scrutinize the existing axioms and theorems of the TSC and will focus on one of the issues arising in the context of the TSC. For her research, the student can choose one of the following:

- a **theoretical** issue, such as the clarification of the status of the second law (law of theory acceptance) or the reconciliation of the first law (law of scientific inertia) with apparent historical cases of a theory’s rejection without its replacement (e.g. rejection of mathematical propositions), etc.;
- a **metatheoretical** (philosophical) issue, such as the explication of the concept of scientific community or redefinition of the distinction between individual and social levels etc.;
- a **historical** issue, such as the reconstruction of fragments of the mosaics of different epistemic communities at different time periods, or analysis of a certain historical transition by means of the theory of scientific change.

The two main **goals** of the project are:

- to **learn** the intricacies of the theory of scientific change and acquire necessary **skills** to extend the theory and apply it to different episodes of the history of science;
- to conduct **individual research** with the aim of improving our overall understanding of the process of scientific change.

Overall, the project will provide the student researcher with an excellent opportunity to engage in cutting-edge research in the field of integrated HPS.

DESCRIPTION OF STUDENT PARTICIPATION:
Since the project is both theoretical and empirical, students with a wide range of interests can participate. The project will be approached in **two main phases**.

- In the **first** term, the student researcher will focus on learning the intricacies of the current TSC by studying a selection of recent articles and book chapters. The student researcher will participate in our weekly group meetings, where we will discuss some of the key contemporary issues and brainstorm possible solutions. The aim of this phase is to master the axioms and theorems of the current theory and outlining possible ways of advancing the theory. Consequently, towards the end of the first term, the student researcher will choose a research topic and present a proposal. The topic must be approved by the instructor.
• In the second term, the student researcher will participate in weekly discussions with graduate students and faculty working on the project. The goal of these discussions is to deepen the student’s understanding of the topical issues and help developing her own research thesis. The main focus of this phase will be the research paper itself which will have to be submitted by the last day of classes.

In addition, individual meetings with the student researcher will be held as often as needed to ensure her success in the project.

**MARKING SCHEME (assignments with weight and due date):**

- Participation in weekly Discussions: 25%
- Research Proposal (due November 1, 2019): 10%
- Online Encyclopaedia (due February 14, 2020): 25%
- Research Paper (due April 3, 2020): 40%