Phys 170 (Fall of 2014):

Professional Physics Seminar

(1 credit)

Format:

Conversations on Suggested topics,

Discussions, Assignments to prepare and

participate in Debates Issues;

Grading Method:

Integral on overall activity and participation in debates.

Literature and References:

Class and discussion material on suggested topics.

Suggested Topics:

* Profession of Physicists (Today and in retrospect).

Impact on other scientific disciplines.

Physics and Society.

* Physics on the Frontline of Knowledge vs. Applied Physics.
* XX century Revolution in Physics:

Relativity and Quantum Physics.

* Legacy of XX century revolution in applications:

In condensed matter, Nuclear, Lasers, GPS etc.

* From Barions and Leptons to Standard Model.

Tools to study in High Energy Physics: Cosmic Ray Detection

and Colliding Beam Experiments (LHC and beyond).

* Gravitation and Evolution of Universe. Big Bang and Inflation.
* Entrance of Dark Matter. Do we need to go beyond Standard Model.
* Dark Energy.
* Frontlines in Applied Physics: Condensed Matter.
* Modern Atomic Physics and Quantum computing
* Nano-science and Metamaterials.
* Physics and Global Problems of XXI century.
* Understanding the Global Climate Change.
* Physics for the Energy Crisis.
* Nuclear Energy and Weapons. Manhattan Project

as an Example of Large Scale Organized Efforts.

Arms Race and International Treaties.

* Role of Physics in Space Program. Global implications and Treaties.
* Physics for Medicine.