Physics 206 is designed as a physics course requiring and using minimal mathematics that investigates the overlap area of faith and reason, combining science, the arts and religion. The text used is *Seeking Truth: Living with Doubt* by Steven Fortney and Marshall Onellion.

We cover several topics of art and modern science (e.g., evolution, cosmology, molecular biology, altruism, 21st century problems involving technology), but unlike Brian Greene (*The Fabric of the Cosmos*) and Sam Harris (*The End of Faith*), we repeatedly acknowledge the religious impulse and discuss how to integrate religious and rational beliefs. The Eastern faiths, particularly in their European and American inflections, the mystical inflections in Judaism, the progressive Christian movement, even some versions of liberal Sufism are touched on. We criticize ideologies of several varieties, including religious (fundamentalist Judaism, Christianity and Islam), scientific (eugenics, Lysenko episode), political (postmodernism and intolerant chauvinism) and economic (unregulated *laissez faire* capitalism).

While we agree with Bruce Bawer (*While Europe Slept*) and Claire Berlinski (*Menace in Europe*), neither suggests a solution to what ails Europe or how the West including our own country can rationally confront the dangers of militant Islam. Where Samuel Huntington (*The Clash of Civilizations and the Remaking of World Order*) sees civilizations in conflict, we argue that the conflict is between modernity and fundamentalism that transcends mere religious differences. As much as we admire and cite the works of Karen Armstrong, we feel she does not assess the threat of the current majority in Islam adequately. Our assessment of Islam is closer to that of Robert Spencer (*The Politically Incorrect Guide to Islam*), but we go well beyond Spencer to thoroughly discuss other fundamentalisms. We review the arguments of Reza Aslan (*No God but God*) but doubt that Islam can be reformed.

Instead, we argue that the struggle and conflict between modernity and all fundamentalisms, including Islam, is likely to be long-term and that the outcome is very much in doubt. There is a very real fear stalking the world today, and that fear may lead to the ultimate triumph of one or another ideology and the suppression of rationality. We argue repeatedly that there is a 'war' between modernity and fundamentalism, but that this is ultimately a war of ideas, not of guns. We discuss the conflict between modernity and fundamentalist ideology. That this conflict is urgent goes without saying. The facts we use speak for themselves, and carry our argument. We have used this strength to present a compelling argument that seeking the truth, and living with the doubt that accompanies such seeking, is not merely one way but the only way to triumph over the fundamentalist ideologies so visible and dangerous today.

There are two class meetings each week. In one of these, we hold a round table discussion of the text chapter covered that week. The emphasis in the discussion is to critically examine the issues in that chapter and put forward arguments in support and contradiction to the points made in the text. Another further goal is to help every student develop his/her abilities in adult argumentation by the class asking critical questions of the text, the teacher and each other. In the first half of the course, the teacher, Marshall Onellion, will serve as the 'tackling dummy' for this goal of developing adult argumentation. In the second half of the course there will be guest lecturers on Judaism (Rabbi Andrea Steinberger, UW Hillel Foundation), Christianity (Pastor Brent Christensen, Lutheran Campus Ministry), Islam (Prof. Tamir Moustafa), the dangers of fundamentalist Christianity (Mr. Chris Hedges), and the dangers of fundamentalist Islam (Mr. Robert Spencer). The other meeting involves a physics example related to the text chapter, and will more closely resemble a traditional lecture, with handouts provided.

The topics we will cover are as follows, referring to the chapter in the text:


Chapter 3 (Doubt): Tribalism in science. Paradigms and paradigm shifts. Examples: Quantum mechanics, plate tectonics, dinosaur extinction events (Luis Alvarez). This latter includes radioactive decay, isotope ratios, and elemental abundance.


Chapter 5 (Freedom): Role of freedom and truth in the sciences, the arts and religion. Example: Neutrinos and neutrino oscillations, rise of early modern science.

Chapter 6 (Cosmology): Comparison of Sumerian, Abrahamic and current cosmologies. Examples: Modern cosmology in physics, including microwave background, inflation, standard candles, Higgs field and time-dependent gravitational acceleration.

Chapter 7 (Individual Journey): How the individual journey of discovery occurs in science, the arts and religions. Example: Number theory appears and its use in science. Connect to symmetry in physics.

Chapter 8 (Popular Perception Gap): The gap between what is known and what people have learned, and how this affects the sciences, arts and religions. Examples: Evolution, which is mostly biology but discuss role physics plays via the energy levels for molecular stability.

Chapter 9 (Mind-Body): How the concept of 'mind,' 'soul,' and 'body' appear in the sciences, arts and religions. Examples: The 'computer' model of human brain and limitations of this model, physics and use of magnetic resonance imaging in neurology, postmodernism and physics.

Chapter 10 (Social Consequences): What are the social consequences of the disconnect between knowledge and what people act on in the sciences, arts and religions? Examples: Government dictat (the Lysenko episode in the Soviet Union and the Challenger disaster, referring to Feynman's minority report on the latter), 21st century problems and the physics thereof.

Chapter 11 (Ethics and Enemies): What are the ethics and enemies of the sciences, arts and religions? Example: Altruism.

Chapter 12 (Hope): Discuss the roles of science and society. Examples: Main scientific issues facing 21st century America.

This is a writing-intensive course. Your grade will be based on the following:
1) 12 papers, one on each chapter, in which you choose a non-science, significant point in that chapter and rebut it in your paper. You must disagree with the text and make a persuasive argument for the view you put forward. You will turn in the final draft of the paper on the date due, I will criticize it and return it the next class period, then you will turn in the final version, with whatever revisions you wish to make, a week after you turn in the final draft. It is the final version that will be graded: 5% each, total 60% of grade.
2) Two longer papers, on science topics found in chapters 1-6 and 7-12, which can be done individually or in two person teams. You must study some science topic more deeply than we cover in the class and write a paper persuading me of your understanding. You will turn in the
final draft of the paper on the date due. I will criticize it and give it to the Writing Fellows, who will work with you to improve it. You will turn in the final version two weeks after you turn in the final draft. It is the final version that will be graded: 10% each, total 20% of grade.

3) Oral presentation on first scientific topic in class, in which you explain your understanding and we discuss other related points. Each 1 or 2 person team will give a 15 minute oral presentation, followed by 5 minutes of question. This will count for 10% of grade;

4) Demonstrated ability at argumentation and questioning. 10% of grade.

To reduce subjectivity, the Writing Center will be used for the longer papers, and you must disagree with the course text in the chapter papers. The goal is to learn some physics, investigate truth seeking in the sciences, arts and religion, and to argue about the impediments to seeking truth in all three areas of knowledge.

Schedule:
Sept. 4 (Tu): 1st day of class
Sept. 18: Ch. 1 paper due
Sept. 25: Ch. 2 paper due
Oct. 2: Ch. 3 paper due
Oct. 9: Ch. 4 paper due
Oct. 16: Ch. 5 paper due
Oct. 23: Ch. 6 paper due, first long paper due
Oct. 30: Ch. 7 paper due
Nov. 6: Ch. 8 paper due
Nov. 13: Ch. 9 paper due
Nov. 20: Ch. 10 paper due
Nov. 27: Ch. 11 paper due, second long paper due
Dec. 4: Ch. 12 paper due. Last two weeks will be used for oral presentations.

Guest lectures: 10/23, 10/30, 11/6, 11/13, 11/20 and 11/27.