Exploring Physics and Fiction in English Culture

The University of Hertfordshire, Hatfield, Hertfordshire

Overview:
This four week class in England will focus on day trips to London, one a week. The London trips will form the basis for the Physics, Literature, reading and writing in this class. Students will earn the following six General Education credits, including the Diversity requirement, for the course:
3 Credits of Physical Science Gen Ed credit through PHYS 1010: “Elementary Physics”
3 Credits of Humanities Gen Ed credit through HU/DV 2220: “Introduction to Fiction”

Teachers:
Dr. Brad Carroll  Physics Department
Dr. Judy Elsley  English Department

Required Texts:
Dickens, Charles  “Hard Times”
Faraday, Michael  “The Chemical History of a Candle”
Jardine, Lisa  “Ingenious Pursuits”
Sobel, Dava  “Longitude”
Shakespeare, William  A play showing at the Globe Theatre
Trollope, Joanne  “The Rector’s Wife”

Weekly Schedule:
Monday and Friday
9:00 – 10:30 a.m.  Dr. Elsley
11:00 – 12:30 p.m.  Dr. Carroll
The rest of the day is free for homework and travel

Tuesday and Thursday
9:00 – 10:00  Trip preparation (Tuesday); Trip reflection (Thursday)
10:15 – 11:15  Dr. Elsley
11:30 – 12:30  Dr. Carroll
The rest of the day is free for homework and travel

Wednesday
Class trip to London

Students are free to travel on their own Saturday and Sunday.
The Course Week by Week:
Tuesday will be preparation days for our trips, Wednesday we’ll travel, and Thursday we’ll follow up on our day out. On Thursday and Friday we’ll focus more on the academic material of Physics and Fiction.

Week 1 June 15th to June 19th
Trip: Exploring Hatfield
Texts: “The Rector’s Wife”
    Chs. 1 – 3 (pp. 1 – 132) “Ingenious Pursuits”
Physics: Early astronomy, Kepler’s laws of planetary motion, mass and matter, Newton’s laws of force, motion and gravity, weighing Earth, optics, telescopes and microscopes
Fiction: An introduction to the literary terms we use to talk about fiction.

We’ll use the internet to prepare for our Wednesday trip exploring the history and culture of Hatfield, the area where we’re based. Students will pair up to find out about such topics as the history of British religion and the local churches; pubs and other social gathering places; educational facilities; evidence of England’s history with race and ethnicity etc. This exploration will include interviews with local people, a write-up of findings, and an oral presentation with photos.

Week 2 June 22nd to June 26th
Trip: Greenwich
Texts: “Longitude”
    Chs. 4 – 6 (pp. 133 – 272) “Ingenious Pursuits”
Physics: Newton’s clockwork universe, triangulation and astronomy, speed of light, transits of Venus, longitude, collecting and organizing, the British Museum
Fiction: We will discuss the difference between fiction and non-fiction by comparing the two texts we have read.

We will visit the Greenwich area of London to see the Royal Observatory where the clocks described in “Longitude” are housed. We’ll also visit the Maritime Museum in Greenwich and travel along the Thames by boat.

Week 3 June 29th to July 3rd
Trip: London Museums
Texts: “Hard Times”
    Chs. 7 – 9 (pp. 273 – 365) “Ingenious Pursuits”
Physics: Communicating science, the Royal Society, Hooke’s law for springs, energy, engines, the Industrial Revolution
Fiction: This week’s text offers us an opportunity to discuss the connection between history and fiction, as well as irony, character development and the importance of setting.

We will start our trip with a visit to Tate Modern, a venue for contemporary art housed in a renovated power station. We will then pair up to visit a museum of your choosing. You could go to The Science Museum, The Natural History Museum, The Victoria and Albert Museum, The British Museum, the National Gallery, the National Portrait Gallery, London Transport Museum
or Covent Garden. We’ll also learn how to use the London “tube” system to get around, and if you have time, you may want to shop on Oxford Street.

Week 4 July 6th to July 10th
Trip: Exploring London
Texts: “The Chemical History of a Candle”
   The Shakespeare play we see
Physics: Faraday, electric and magnetic fields, the nature of science, equilibrium and architecture
Fiction: Shakespeare may seem daunting, but our class discussion combined with seeing the play performed will help us appreciate and enjoy the Bard.

In the morning, we will go to the Royal Society’s Faraday Museum, a place associated with Michael Faraday. We’ll then visit St. Paul’s Cathedral and the Millennium Bridge, places of historical and physics interest. We’ll end our day by watching a performance of one of Shakespeare’s plays at the Globe Theater, which is a faithful reproduction of theatre in Shakespeare’s time.

Week 4 Friday, July 10th
Trip: Westminster Abbey
On our last day of class, we’ll go to Westminster Abbey to see the graves of some of England’s most famous writers and scientists. You’ll be free to explore other parts of London for the rest of the day.

Assignments:

1. One short paper per week for each teacher. In other words 2 papers per week, 8 in all. These papers will demonstrate your understanding of the:
   - Basic laws of physics and their application to physical situations; 20%
   - Various components of fiction, and your ability to analyze the literature we read in terms of those components. 20%
2. You will keep a daily self-reflection journal (at least one full single-spaced page of writing) which you will submit at the end of each week. The purpose of the journal is to consider what you’ve learned, day by day. 20%
3. At the end of the course, you will make a trip log of your journal pages, including photos, ticket stubs etc. 20%
4. We will meet after the class, back home in Ogden, in order for you to give a 5 to 10 minute power point presentation: What did you learn about Physics, Fiction and English culture from this trip? 20%

Grading Criteria:
This class is based on the mastery of the following skills:

- An understanding and application of basic laws of physics;
- The ability to apply those laws to physical situations;
- Analysis of a literary text, using the tools of fiction;
- Writing skills.
A = 80% mastery of skills plus an excellent post-class presentation
B = 80% mastery of skills plus a good post-class presentation
C = 70% mastery of skills plus an adequate post-class presentation

This class is based on the following General Education Learning Outcomes:

Humanities:

1. Students will demonstrate knowledge of diverse philosophical, communicative, linguistic, or literary traditions, as well as of key themes, concepts, issues, terminology, and ethical standards in humanities disciplines.
2. Students will analyze cultural artifacts within a given discipline, and, when appropriate, across disciplines, time periods, and cultures.
3. Students will demonstrate the ability to effectively communicate their understanding of humanities materials in written, oral, or graphic forms.

Physical Sciences:

1. **Organization of systems:** The universe is scientifically understandable in terms of interconnected systems. The systems evolve over time according to basic physical laws.
2. **Matter:** Matter comprises an important component of the universe, and has physical properties that can be described over a range of scales.
3. **Energy:** Interactions within the universe can be described in terms of energy exchange and conservation.
4. **Forces:** Equilibrium and change are determined by forces acting at all organizational levels.