COURSE OVERVIEW
This course will focus on energy systems in the modern context, reviewing how energy is sourced, harnessed, distributed, and used in today's society, and how potential sustainable energy transitions might proceed. Students will review basic energy concepts; explore fossil fuel, nuclear, and renewable energy sources; consider the technologies available to harness and utilize energy; and develop an understanding of energy demand for heat, transport, and electricity. Canada will be the primary focus of the course, but global resources and the scales of energy transitions and their geographies will be discussed. Students taking this class will gain an understanding of the roles of renewable and non-renewable energy sources in Canada's current and future energy mix, and the policies that are guiding energy transitions.

LEARNING OUTCOMES
To complete this course, students will demonstrate their ability to:
1. Critically review academic and industry literature related to energy supply and demand.
2. Describe the function of different energy generation options, in terms of technological readiness and end-use fit.
3. Explain the benefits and disadvantages, both quantitative and qualitative, that different energy resources present.
4. Present complex concepts in written format.
5. Work independently to complete assignments.

COURSE TOPICS
1. What is energy? Basic concepts and terminology
2. How do we use energy currently? Transport, Heat, and Electricity
3. Fossil fuel resources (coal, oil, natural gas)
4. Renewable energy resources (hydro, wind, solar, geothermal, biomass, ocean)
5. Nuclear energy
6. Impacts of energy development—political, sociocultural, environmental, and economic
7. How can we use energy sustainably?
8. Energy transition pathways: local, regional, global

COURSE READINGS
No course textbook. Average of 1-2 papers will be suggested per week, depending on length and topic. Key readings include: