

**San José State University**  
**Environmental Studies Department**  
**Energy & the Environment ENVS/ENGR 119**

**Course and Contact Information**

**Faculty Web Page and MYSJSU Messaging**

You are responsible for **daily** checking with the messaging system through MySJSU and Canvas. All course materials such as the syllabus, calendar, assignments, readings, and handouts are posted to canvas: <https://sjsu.instructure.com>. Log in with your SJSU One account info. For assistance see: <http://www.sjsu.edu/at/ec/support/>

**Course Description**

In this course you will be introduced to the nexus of social, technical, and environmental challenges to providing sustainable energy supplies and patterns of use. You will learn physical principles underlying power generation, conventional forms of energy and their social and environmental impacts, sources of renewable energy, and means to transition to more sustainable energy sources. The political, economic, cultural, historical, and policy dimensions of energy procurement, generation, and consumption will show how energy issues are entangled in deeper social and environmental contexts. Human civilization cannot continue using fossil fueled based energy at our present rate of consumption; we must look for ways to decrease and decarbonize our energy use.

This course is divided into five parts. Part I reviews energy generation and consumption patterns and the scientific principles related to energy, heat, and work. Part II of this course explores various sources of energy from conventional forms of energy generation and their social and environmental impacts. Part III focuses on renewables including solar, wind, biomass, wave, tidal, hydroelectric, and geothermal. Part IV centers on questions about making infrastructure more sustainable: food systems, transportation, and buildings. In part V, we will synthesize planning efforts and proposals for making sustainable energy transitions.

## **Course Goals**

At the end of this course, students should be able to:

Understand the nexus of energy challenges and relevant economic, social, and environmental issues.

Describe the physical principles related to the energy, heat, power, and work

Complete basic calculations / conversions in energy, heat, power, and work

Academic integrity:

## University Policies

### **Academic integrity**

Your commitment, as a student, to learning is evidenced by your enrollment at San Jose State University. The University Academic Integrity Policy F15-7 requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. Visit the Student Conduct and Ethical Development website for more information.

See here for other campus wide policies <http://www.sjsu.edu/gup/syllabusinfo/>

### **Grading – Exams**

10% weekly Quizzes (about 12 mini-exams, in class, Canvas based and proctored) Quizzes are based on key concepts from either (1) the lecture slides (2) the assigned chapter of the text book (3) the assigned readings. Quizzes takes a maximum of 10 minutes of class time, and are always proctored using a Lockdown browser, with the student camera ON during class time.

10% participation. The class will meet 30 times over the semester on Zoom. Each session, students are eligible to earn two (2) participation points by asking a question once a week, bringing a comment to the class discussion, or being the “voice” of their working group. The recording of the lecture will be the proof material regarding the fairness of these points distribution. Follow you class participation grade after each lecture and make sure you are rewarded for doing your part. If you choose to not participate live during the Zoom lecture, **you can also get you two points participation grade per week by writing your entry on the week Canvas discussion board (or replying to another student entry).**

20% Assignments: As part of the activities in this class, you will complete 3 graded assignments. Late assignments are ALWAYS accepted following these penalty rules: 1 week after due date of unexcused delay -25%, 2 weeks after due date -50%.

### **Determination of Grades**

The course grade will be determined based on a total 100 possible points. Accumulated points that fall within the grade scale below determine your semester grade.

A+ 97–100

A 92–96

A- 89–91

B+ 86–88

B 81–85

B- 79–80

C+ 76–78

C 72–75

C- 69–71

D+ 67–68

D 64–66

D- 60–64

F < 60

NO Extra Credit available (given the workload to deal with in this class).

### **Grading Information for upper division GE courses (R, S, V)**

“Passage of the Writing Skills Test (WST) or ENGL/LLD 100A with a C or better (C- not accepted), and completion of Core General Education are prerequisite to all SJSU Studies courses. Completion of, or co-registration in, 100W is strongly recommended. A minimum aggregate GPA of 2.0 in GE Areas R, S, & V shall be required of all students.”

### **Primary sources for your Final Paper**

(choose one book to read over the semester - most can be checked at SJSU library)

“Big Coal, The Dirty Secret Behind America’s Energy Future” by Jeff Goodwell

“Dark Money, The Hidden History of the Billionaires Behind the Rise of the Radical Right” by Jane Mayer

“Energy, The Making of the Atomic Bomb, a Human History” by Richard Rhodes

“The Water Will Come, Rising Sea, Sinking Cities and the Remaining of the Civilized World” by Jeff Goodwell

“Cadillac desert: The American West and it’s Disappearing Water” by M. Reisner

"Colossus. Hoover Dam and the Making of the American Century" by Michael Hiltzik

“Green Illusions, the Dirty Secret of Clean Energy and the Future of Environmentalism” by Ozzie Zehmer

“Autonomy, The Quest to Build the Driverless Car and How it Will Reshape our World” by Lawrence D. Burns

"Faster, Higher, Farther. The (Clean Diesel) Volkswagen Scandal" by Jack Ewing

"High Voltage. The Fast Track to Plug-in the Auto Industry" by Jim Motavalli

"Bottled Lightning. Superbatteries, Electric cars and the New Lithium Economy" by Seth Fletcher

“The Great Transition, Shifting from Fossil Fuels to Solar and Wind Energy” by Lester R. Brown

"Reinventing Fire. Bold Business Solutions for the New Energy Era" by Amory B. Lovins

“Solar Power. Innovation, Sustainability and Environmental Justice” by Mulvaney

"A fierce Green Fire" by Philip Shabecoff

"Toward a Zero Energy Home. A complete Guide to Energy Self-Sufficiency at Home" by David Johnston & Scott Gibson

"Let it Shine, The 6,000-year Story of Solar Energy" by John Perlin

## **Course Schedule**

Due to the possibility of changes, always refer to the electronic schedule on Canvas