



## Assessing the Food-Energy-Water Nexus

Fall 2021

**CIVE/GES 528**

### **Course Instructors:**

#### **Dr. Sybil Sharvelle**

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#### **Dr. Rich Conant**

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#### **Dr. Chris Goemans**

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#### **Dr. Stephanie Malin**

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**Office Hours:** By appointment

### **Office Hours**

TBD, [Join on Microsoft Teams](#)

I will be connected to Microsoft Teams for all of the office period, but may be working on other things and have audio off. When you join, if you do not see me, please use the meeting chat to let me know you are there and have a question.

**Canvas:** We will use Canvas in this course. Lecture materials including PowerPoint slides and readings will be made available prior to class. Grades and assignments will be posted on Canvas.

**Course Description:** This 3 credit hour course provides a broad overview of FEW nexus issues, an understanding of the science underpinning FEW issues, working knowledge about the tradeoffs amongst sectors, and experience analyzing the socio-economic constraints and policy limitations incumbent on solutions to FEWS challenges. The course will introduce tools to enhance systems level thinking and problem solving.

**Course Prerequisite:** CHEM 103, 107, or 111 or Instructor Approval

**Course Objectives:** At the conclusion of this course, students will be able to:

- Explain and critically analyze issues related to each food, energy, and water systems and the connections between those systems
- Apply concepts from economics, social sciences, and ecosystem sciences coupled with technical analysis to better analyze complex FEWS problems
- Define, describe, and apply extra-disciplinary language
- Apply systems thinking and the Drivers, Pressures, States, Impacts and Response (DPSIR) framework to holistically analyze complex FEWS problems

### **Course Outline:**

**Introduction FEW issues in the South Platte Region [3]**

**Mapping FEW connections [2]**

**Introduction to DPSIR framework and preliminary mapping activity [3]**

**Western water policy and impacts in the South Platte Region [2]**

**Food systems [1]**

**Water systems [2]**

**Energy systems [1]**

**Social and environmental justice and FEWS in the South Platte Region [6]**

**Economic assessment of FEWS [6]**

**Carbon Footprint in FEWS [3]**

**DPSIR mapping [3]**

**Technological solutions for FEWS [7]**

**Student led case study presentations [6]**

**Student led case study presentations [Finals Week]**

**Course Evaluation:**

**1) Participation** (10% of your grade)

Class periods will include discussions and group activities. You will receive a grade for your contribution to discussions and activities.

**2) Assignments** (50% of your grade)

Note: Material covered during guest lectures will be included on the exam

**3) Case Study Project** (40% of your grade)

Note: Material covered during guest lectures and student presentations will be included on the exam

Term grades for this course will use the +/- grading system as described in the CSU catalog.