Plan of Study for the Science and Engineering for Sustainable Solutions Track of the Energy, Climate, and the Environment AB Concentration

Effective for Students Declaring the Concentration after July 2026

DATE: _____ **NAME:** _____

CLASS: _____ **EMAIL:** _____

This Plan of Study Form is for a (Check One): ◉ DECLARATION ○ REVISION

Please list your selected concentration courses in the schedule below:

Fall 1	Spring 1	Fall 2	Spring 2	Fall 3	Spring 3	Fall 4	Spring 4

REQUIRED COURSES	**Selected Courses**
ENCE Common Core *(2 courses)* ENCE 10 – Gateway to ENCE (*typically taken in first term*) ENCE 100 – Senior Team Project (*typically taken senior fall*)	
SESS Track Gateway *(1 course)* ENCE 50 – Gateway to Science & Engineering for Sustainable Solutions (*typically taken after ENCE 10 in the first year*)	
Mathematics *(2 courses)* *Begin according to placement:* Math 21a – Multivariable Calculus Math 21b – Linear Algebra & Differential Equations *May select instead:* Math 22a and 22b; Math 25a and 25b; or Math 55a and 55b	
Physics and Chemistry *(3 courses)* Mechanics: • *Select 1 from*: Phys Sci 12a, Physics 15a, Physics 16, or Physics 19 Chemistry and Additional Physics: • *Select 1 from:* Phys Sci 11, Chem 10, Chem 20, Chem 40 • *Select 1 additional from:* Phys Sci 11, Chem 10, Chem 20, Chem 40, PhysSci 12b, Physics 15b, Physics 143a, Eng-Sci 123	
Statistics, Data Science, or Computer Science *(1 course)* *Select 1 from*: AM 101, AM 105, ECE 150, Stat 110, Stat 111, CS 1090A, EPS 102, AM 10, AM 111, CS 32, CS 50	

REQUIRED COURSES	Selected Courses
Track Braid Requirements *(4 courses).* *Select ONE Track Braid below; course titles on following page.* ◉ **SESS Braid in Energy Systems** • *Thermodynamics/Statistical Mechanics. Select 1 from:* ES 112, ES 181, Phys 181 • *Energy Systems Core. Select 3 from*: ECE 145, ESE 133, ESE 164, Phys 129, AP 236, CS 2490R, ES 215, ES 231 ◯ **SESS Braid in Sustainable Computing** • *Sustainable Computing Core. Select 4 from*: ECE 141, ECE 145, ECE 148, ECE 152, ES 192, ES 215, ESE 161, CS 1411, CS 1450, CS 2430, CS 2490R ◯ **SESS Braid in Climate and Environmental Systems and Modeling** • *Systems Modeling Core. Select 4 from*: ECE 145, ESE 133, ESE/EPS 135, ESE 161, ESE 163, ESE 164, ESE 166, ES 192, ES 268/EPS 208, AP 236, CS 2490R	
Track Distribution *(2 courses). Select two courses from the lists below. Students are encouraged to consider selecting ENCE 51.* • ENCE 51, ENCE 130 • ECON 1661, ECON 1644 • GOV 1722 • HIST 1936 • HISTSCI 101, HISTSCI 1385, HISTSCI 1410 • OEB 110, OEB 120 • SCI 6486 • No more than one from: GENED 1015, GENED 1103, GENED 1117	

Required Signatures:

_____ _____

Student Date

_____ _____

ENCE Concentration Approver Date

Indicate if a petition is needed: Yes☐ No☐

COURSE TITLES

Physics and Chemistry

CHEM 10 – Quantum, Statistical, and Computational Foundations of Chemistry

CHEM 20 – Organic Chemistry

CHEM 40 – Inorganic Chemistry

ES 123 – Intro to Fluid Mechanics & Transport Processes

PHYS 15a – Introductory Mechanics and Relativity

PHYS 15b – Introductory Electromagnetism

PHYS 16 – Mechanics and Special Relativity

PHYS 19 – Introduction to Theoretical Physics

PHYS 143a – Quantum Mechanics I

PS 11 – Foundations and Frontiers of Modern Chemistry

PS 12a – Mechanics and Statistical Physics from an Analytic, Numerical and Experimental Perspective

PS 12b – Electromagnetism from an Analytic, Numerical and Experimental Perspective

Statistics, Data Science, or Computer Science

AM 10 – Computing with Python for Scientists and Engineers

AM 101 – Statistical Inference for Scientists and Engineers

AM 105 – Ordinary and Partial Differential Equations

AM 111 – Introduction to Scientific Computing

CS 32 – Computational Thinking and Problem Thinking

CS 50 – Introduction to Computer Science

CS 1090A – Data Science 1: Introduction to Data Science

ES 150 – Probability with Engineering Applications

EPS 102 – Data Analysis and Statistical Inference in the Earth and Environmental Sciences

STAT 110 – Introduction to Probability

STAT 111 – Introduction to Statistical Inference

SESS Track Braid Requirements

AP 236 – Physical Electrochemistry and its Applications to Sustainable Engineering

CS 1411 – Computer Architecture

CS 1450 – Networking at Scale

CS 2430 – Advanced Computer Networks

CS 2490R – Topics in Edge Computing

ECE 141 – Computing Hardware

ECE 145 – Modern Electric Power Systems

ECE 148 – Design of VLSI Circuits and Systems

ECE 152 – Circuits, Devices, and Transduction

ES 112 – Thermodynamics

ES 181 – Engineering Thermodynamics

ES 192 – Materials Selection and Design

ES 215 – Physical and Economical Operations of Sustainable Energy Systems

ES 231 – Energy Technology

ES 268/EPS 208 – Physics of Climate

ESE 133 – Atmospheric Chemistry

ESE/EPS 135 – Observing the Ocean: Measurements and Instrumentation

ESE 161 – Applied Environmental Toxicology

ESE 163 – Pollution Control in Aquatic Ecosystems

ESE 164 – Chemistry for Energy, Climate, and Environment

ESE 166 – State-of-the-Art Harvard Climate Observatory and Associated Instrumentation

PHYS 129 – Energy Science

PHYS 181 – Statistical Mechanics and Thermodynamics

SESS Track Distribution

ECON 1644 – Market Power in the New Economy

ECON 1661 – Economics of Climate Change and Environmental Policy

ENCE 51 – Nature, Ethics, and the Human Imagination

ENCE 130 – Business of Tough Tech

GENED 1015 – Ethics of Climate Change

GENED 1103 – Living in an Urban Planet

GENED 1117 – Nature

GOV 1722 – Politics of the Environment and Climate Change

HIST 1936 – The Rights of Nature

HISTSCI 101 – Making the World: An Introduction to the History of Technology

HISTSCI 1385 – Water: The Politics and Uncertain Futures of Drought and Climate Change

HISTSCI 1410 – Health and Climate Crises: A History

OEB 110 – Forests, Carbon and Climate

OEB 120 – Plant Ecophysiology and Diversity

SCI 6486 – BioFabrication (GSD)