# Environmental and Sustainable Engineering Planning Checklist (B.S.)

## General Education

- Art
- Challenges in the 21st Century
- Foreign Language
- Humanities
- International Perspectives

## Math

- Natural Sciences
- Social Science
- US History
- Writing and Critical Inquiry

## Environmental and Sustainable Engineering Core Courses (44 Credits)

- **ESE 110**: Intro to Engineering (2)**
- **ESE 201**: Statics (3)
- **ESE 202**: Strength of Materials (3)
- **ESE 221**: Intro to Sus. Eng. (3)
- **ESE 301**: Introduction to ESE (3)
- **ESE 321**: Engineering Applications in Sustainable Design (3)
- **ESE 351**: Fluid Mechanics (3)
- **ESE 381**: Energy Engineering (3)
- **ESE 411**: Water and Wastewater Treatment (3)
- **ESE 412**: Advanced Waste Water Engineering (3)
- **ESE 431**: Air Pollution Control (3)
- **ESE 432**: Air Quality Modeling (3)
- **ESE 451**: Water Resource Engineering (3)
- **ESE 471**: Hazardous Waste Management (3)
- **ESE 497**: Senior Capstone Design (3) [Seniors]

Pre-requisite: MAT 112 or 118

Pre-requisite: ESE 201

Pre-requisite: AMAT 113 and ACHM 121

Pre-requisite: ABIO 130, ACHM 121, AMAT 311

Pre-requisite: ESE 221

Pre-requisite: ESE 301, ESE 351

Pre-requisite: Senior standing and permission of dept.

## Interdisciplinary Core Courses: Atmospheric & Env. Env Health Sci, Comp Eng (18 Credits)

- **AATM 210**: Atm Structure, Thermodynamics, and Circulation (3) [Fall]
- **AENV 250**: Sustain. Develop: Energy and Resources (3) [Spring]
- **HSPH 321**: Global Env. Issues & Effect on Human Health (3)
- **HEHS 560**: Sustainability, Green Design and Public Health (3) [Seniors]
- **ICSI or ICEN 201**: Intro to Computer Science (3)
- **ICSI or ICEN 210**: Discreet Structures (3)

Pre-requisite: AMAT 112 or 118; APHY 140 or 142

Pre-requisite: AATM 210/210Z

Pre-requisite: ACHM 120 or 130, AMAT 111 or 112, APHY 140 or 142

Pre-requisite: One semester of college level bio or chem

Pre-requisite: Permission of instructor

Pre-requisite: AATM 210; A MAT112 or T MAT 118; A MAT 220 recommended

Pre-requisite: I ESE 451

** Grade of C or better required to progress in major

## Mathematics and Science Courses (33 Credits)

- **ACHM 120**: General Chemistry I (3)**
- **ACHM 124**: General Chemistry Lab I (1)
- **ACHM 121**: General Chemistry II (3)**
- **ACHM 125**: General Chemistry Lab II (1)
- **ABIO 130**: Biology I (3)
- **APHY 140/142**: Physics I: Mechanics (3)
- **APHY 145**: Physics Lab I (1) [Fall]
- **AMAT 112 OR 118 OR TMAT 118**: Calculus I (4)**
- **AMAT 113 OR 119 OR TMAT 119**: Calculus II (4)**
- **AMAT 214**: Calculus of Several Variables (4)
- **AMAT 311**: Ordinary Differential Equations (3)
- **AMAT 370**: Prob. & Stat. for Eng. & the Sci (3) [Fall]

Pre-requisite: AATM 210

Pre-requisite: A ATM 210; A MAT 112 or T MAT 118; A PHY 140 or T PHY 141

Pre-requisite: A ATM 210, A MAT112 or T MAT 118; A MAT 220 recommended

## ESE Electives (9 Credits)

- **AATM 200**: Natural Disasters (3)
- **AATM 301**: Surface Hydrology and Hydrometeorology (3)
- **AGOG 496 (=AUSP 456)**: Geographic Information Systems (3)
- **AATM 304/304Z**: Air Quality and Pollution Policy (3)
- **AATM 323 (=HEHS 323)**: Environmental Laboratory Perspectives in Public Health (3)
- **AATM 301**: Surface Hydrology and Hydrometeorology (3)
- **EHS 520 Environmental Chemistry (3)**
- **AUSP 452 CADD in Planning (3)**
- **AENV 315 (=AATM 315)**: Environmental Statistics and Computation (4)
- **ESE 452 Groundwater Hydrology (3)**

Engineering topic will be cross-listed

Pre-requisite: A ATM 210, A MAT112 or T MAT 118; A MAT 220 recommended

Pre-requisite: I ESE 451

** Grade of C or better required to progress in major