

SUST 310:

Methods and Tools in Sustainability

**Instructors:** TBD

**Office Hours:** As posted on office doors and by appointment

**Webpage**: Moodle course management system

**Texts:** TBD

**A syllabus is a general guide to the course.  It is not a contract or agreement.  The instructor reserves the right to unilaterally change anything contained in the syllabus, including but not limited to, assignments, tests, or grading.**

**Catalog Description:** This course introduces students to accepted methods by which sustainability is measured and assessed at scales from the individual to the planet. Students learn how to prepare and interpret sustainability reports and other data related to sustainability. This course assists students in preparing to obtain certifications in sustainability. F, S, Su.

**DESCRIPTION:** We may all know sustainability when we see it, but how do we measure and assess it? How do we interpret, use, and communicate what we’ve measured and assessed? What are the most useful sustainability certifications and accreditations? In this course you will be introduced to accepted methods by which sustainability is measured and assessed at scales from the individual to the planet, including communities, companies, universities, and you. You will also learn how to prepare and interpret sustainability reports and other data related to sustainability. This course will also assist you in preparing to obtain certifications in sustainability. Topics include systems thinking, life cycle assessment, UN Sustainable Development Goals, Sulitest sustainability literacy test, energy audits, waste audits, personal and institutional ecological footprints, greenhouse gas inventories, EPA’s comprehensive Sustainability Toolbox, Environmental Performance Index (EPI), green building certifications, STARS (Sustainability Tracking, Assessment & Rating System) for higher education, B corp, personal accreditations, and other third party certifications.

**OBJECTIVES:** This course covers methods by which sustainability is measured, assessed, and communicated. It will also introduce you to the world of sustainability accreditations and certifications. It will provide both classroom and practical experience, including sustainability assessments of the campus. Students will also prepare for personal accreditation in one of the numerous sustainability accreditations currently available.

**STUDENT LEARNING OUTCOMES (SLOs):** Upon successful completion of this course, **if students prepare responsibly and devote appropriate time** to this course, they should be able to:

1. Define sustainability.

2. Demonstrate the ability to define and solve real-world problems by applying simple mathematics to principles of sustainability.

4. Proficiently use the Metric System (units of distance, mass, and volume), including prefixes.

5. Proficiently use Scientific Notation and be able to perform basic calculations involving scientific notation.

6. Quantify Issues using appropriate mathematical formulas, e.g. *population density* and *per capita* resource use.

7. Apply basic mathematical concepts including exponential growth and doubling time to calculate and project population growth and resource use.

8. Distinguish between and be able to manipulate basic units, measures, and rates used in sustainability.

9. Describe and give examples of how sustainability is incorporated in developing improved human-built systems and products.

10. Define and describe the basics of community-based mapping and interviewing, and be able to describe how these tools can be used to improve community sustainability and resilience.

11. List and discuss professional certifications and accreditations in sustainability.

12. Prepare for sustainability accreditation in areas of your choice.

**STUDY TIPS:** The average student should spend at least 3 hours studying for each hour spent in class to receive an average or above grade in this course. If you want to do better, more studying will be required. Study time should be allocated evenly throughout the semester. We will be happy to provide you with advice concerning study habits if you have difficulty early on in the semester. **Do not expect to pass the course, much less earn a good grade, if you do not devote sufficient high-quality time to this course.**

**ACADEMIC INTEGRITY/CHEATING: Cheating or plagiarism will result in removal from the course and assignment of a grade of F**. Poor grades earned due to cheating or plagiarism cannot be removed through the Repeat Forgiveness Policy. “Cutting and pasting” from online sources or from each other is plagiarism and will be dealt with accordingly.

**GRADING:** Your grade for lecture will consist of:

Two tests (20 pts each) 40 points

Homework/projects/participation 35

2 Book Assignments (7.5 pts each)

Celebration of Inquiry project (10)

Environmental Issue (7.5)

Participation (2.5)

Final Exam 25

Grading Scale: >90 = A; 87 – 89 =B+; 80-86 = B; 77 – 79 = C+; 70 – 76 = C; 67 – 69 = D+; 60 -66 = D; <60 = F

**CLASSWORK:** All written assignments must be typed, 1.5-spaced, using 11-12 point font, and printed dark enough to read. They should reflect proper grammar and spelling, and thus should be adequately proofread. **Either use previously-used paper or print double-sided. We can provide the former when an assignment is first announced, if needed.** All assignments must be submitted directly to the professor and not e-mailed (unless specifically told otherwise), placed in our mailboxes, or slid under our doors.

**ATTENDANCE POLICY:** According to CCU policy, “An instructor is permitted to impose a penalty, including the grade of F, for unexcused absences in excess of 25% of the regularly scheduled class meetings.” At our discretion, we will offer limited make-up opportunities formissed tests, provided **(a) the absence is excused (based on university policy) and,** **(b) you provide us with written verification of the nature of your absence in a timely manner.**

**There are no make up exams without a university-excused absence or prior permission.** Homework assignments will be distributed in class. They are due on the date indicated. Late assignments will be penalized 40% and will not be accepted after the next class meeting. Please make sure your name is on each piece of paper with the pages stapled together.

**COURSE MATERIALS: You are responsible for all information presented in the text even if this material is not discussed in class, unless otherwise informed**. We will also discuss or view (i.e. video, internet, etc.) supplementary materials from sources outside of the text. You will also be responsible for these materials during exams unless otherwise instructed.

**OTHER CLASSROOM PRACTICES AND POLICIES:** Our approach to teaching favors active learning and critical thinking over passive learning; promotes depth of understanding and insight over simple surveys of material. Our responsibility to you (and to society as well) is to provide a well-planned, rigorous course that enables you to fulfill the course's objectives. Your responsibility is, quite simply, to assume responsibility for your education in this course. Specifically, this means being serious about learning \* being prepared for class (**which means completing the reading and other assignments before coming to class)** \* being engaged in class \* **finding out what you missed if you miss a class (from each other)**. Remember that **you should plan on studying 2 – 3 hours per hour of class. If your preparation is less than this, then you will learn less and likely receive a low grade.**

**Coastal Carolina University’s Americans with Disabilities Act Statement:**

Coastal Carolina University is committed to equitable access and inclusion of individuals with disabilities in accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. Individuals seeking reasonable accommodations should contact Accessibility & Disability Services (843-349-2503 or https://www.coastal.edu/disabilityservices/).

The Americans with Disabilities Act indicates "title II and title III entities must permit service animals to accompany people with disabilities in all areas where members of the public are allowed to go." As such, service animals are permitted in lab settings at Coastal Carolina University. Emotional support animals are not permitted in lab settings unless it is approved as a classroom accommodation. Students with service animals are strongly encouraged, but not required, to inform lab instructors of the use of a service animal. This communication provides both the student and the instructor with an opportunity to discuss and plan for the safety of the service animal as well as any other safety concerns. Students and instructors should contact Accessibility & Disability Services (843-349-2503 or www.coastal.edu/ disabilityservices/) regarding any potential accommodations or for support and assistance.

**Coastal Carolina University’s Statement of Community Expectations:**Coastal Carolina University is an academic community that expects the highest standards of honesty, integrity and personal responsibility. Members of this community are accountable for their actions and reporting the inappropriate action of others and are committed to creating an atmosphere of mutual respect and trust.

**CONTACT POLICY:** If you must contact me, please do so according to these rules:

(1) In person, either in my office during office hours, by appointment, before or after class, or when casually encountered. This is the preferred way to contact me.

(2) By e-mail. Please contact me by e-mail **only for urgent or significantly important questions or notifications.** Please read the following guides to emailing professors, and heed the advice:

<https://www.insidehighered.com/views/2015/04/16/advice-students-so-they-dont-sound-silly-emails-essay>

<http://amath.colorado.edu/sites/default/files/2014/08/1882210370/EMAIL_ETIQUETTE.pdf>

Please do not e-mail asking a question you could answer yourself by consulting the syllabus or another student in the class. Also, on the rare occasions when you are allowed or instructed to submit an assignment via e-mail or on Moodle, do not use .odt format or other format not widely accepted.

**FINALLY, please read the following:**

<http://home.snu.edu/~hculbert/contract.htm>

<http://cactus.dixie.edu/smblack/chem1010/contract.pdf>

<http://canpoetry.library.utoronto.ca/wayman/poem5.htm>

<http://canpoetry.library.utoronto.ca/wayman/pub2.htm>

**Your presence in this class in sessions following the distribution of this syllabus indicatesthat you have read and understood this syllabus and that you will comply with its policies and practices.**

**Sequence of Topics**

* Review of principles of sustainability
* UN Sustainable Development Goals
* The metric system, scientific notation, and basic calculations
* Basic units and measures in sustainability
* The difficulty and importance of Sustainability Assessment (SA)
* Sustainability indicators
* Sustainability Standards (Fairtrade, Organic, Dolphin Safe, Compostable, Biodegradable, Marine Stewardship Council, Utz, Forest Stewardship Council, Sustainable Forestry Initiative, Rainforest Alliance, Pasture Raised, Free Range, Sweatshop-free, Energy Star, Carbon offsets, B. Corp, ANSI, ASTM, ASHRAE, ISO,
* Tools for the individual
  + Ecological/Sustainability/Carbon footprint: Diet, Transportation, Housing, Waste, and Consumerism
  + Household Carbon Footprint Calculator
  + Green building (The Home Energy Rating System [HERS] and other household energy, water, and waste audits, LEED, Earthcraft,, and ZeroNet Energy Ready Program)
  + Accreditations and certifications (e.g. LEED accredited professional, LEED green associate,
  + Sustainability Management Certified Associate or Professional  Associate, Sustainability Event Alliance Accredited Professional, International Association of Sustainability Professionals Sustainability Associate or Sustainability Professional, etc.)
* Tools for Communities
  + EPA’s comprehensive Sustainability Toolbox
  + Green construction codes
  + Smart Growth Scorecards
  + EPA’s Adaptation Resource Center (ARC-X)
  + Greenhouse gas inventories
  + Local Foods, Local Places Toolkit: A Guide to Help Communities Revitalize Using Local Food Systems
  + Mayors’ Climate Commitment
  + Sustainable Design and Green Building Toolkit for Local Governments
  + FSC GREEN CITY Program
  + Forest Stewardship Council GREEN CITY Program
  + Environmental Justice and Equitable Development
  + Community Sustainability Mapping and Interviewing
* Tools for Businesses (in addition to those listed in standards above)
  + Green Business Bureau, Green Seal, EPA WasteWise, EPA WaterSense, Animal Welfare Approved, Certified Humane, Cornucopia, Green Plus, EPEAT, Cradle to Cradle, SCS Global Services, Life Cycle Assessment, True Cost Pricing, Walmart Sustainability Index, B corp, etc.
* Tools for Countries
  + Climate Assessments
  + Environmental Performance Index (EPI)
  + GINI Index
* Tools for Universities
  + Sustainability Literacy Test (SULITEST) of the Higher Education Sustainability Initiative (HESI)
  + Presidents’ Climate Commitment
  + STARS (Sustainability Tracking, Assessment & Rating System) for higher education)