This introductory course is open and welcoming to students from all disciplines. The purpose of the course is to introduce you to the realm of environmental design, stressing the ecological underpinnings of sustainable design decisions. First we will examine the scientific process; laws of matter and energy; biogeochemical cycles and the concept of biodiversity. Second, we shall observe how humans shape the environment through design and how design may better respond to scientific laws and principles.

PHILOSOPHY
We believe that the understanding of basic ecological principles is the bedrock of design and a basis for ethical behavior toward others and the environment. This is an interdisciplinary course, demonstrating how design is informed and improved by multiple perspectives. We also encourage dialogue and creative work that is an outgrowth of students’ various backgrounds and majors. We believe that learning should be enjoyable and use a variety of strategies to encourage your critical thinking and understanding: discussion, creative projects, drawings and diagrams in your note taking and the use of visuals. Teamwork is encouraged, as human interaction is important to the course and to your college experience.

OUTCOMES
The goal of the course is to provide you with an understanding of the basic scientific principles underpinning sustainable design. By the end of the semester you will:

- Understand the scientific process and its relevance to environmental decisions.
- Understand scientific principles that can/should form the basis for design decisions
- Understand that design is also a product of political, social and economic decisions
- Be able to distinguish between sustainable and unsustainable design characteristics

The course will help you to develop your ability to make informed judgments about decisions relating to the environment and to distinguish between sustainable and unsustainable design. Specifically you will:

- Be able to define in writing the basic principles of the Law of Conservation of Matter; First and Second Laws of Energy; Carbon and Hydrological Cycles; Concept of Biodiversity
- Have observed manifestations of the scientific principles in the human made environment
- Develop an essay/project which creatively responds to and incorporates scientific principles
- Be able to identify resources for researching current and new knowledge related to sustainable design and described the results of your research in writing
FIELD TRIPS
Field trips are an important part of the course as they enable you to experience firsthand principles described in lecture. They will typically be scheduled to allow us to meet at the site.

ATTENDANCE
Attendance is mandatory for classes and field trips. It will be taken on a random basis. Three absences result in a full grade reduction (i.e., A becomes B). Each additional unexcused absence results in another full grade reduction. Absences are excused only by 1) family emergency 2) documented medical stay or 3) approved college function. Let us know as soon as possible, in advance, if you will miss a class.

POLICIES AND PROCEDURES
For Temple University Policies and Procedures, such as dismissal, add/drop dates, incompletes, etc. see http://www.temple.edu under policies and procedures under quick links.
Note: Faculty has the discretion to revise the syllabus as appropriate during the course of the semester to accommodate the needs of the class.
Disability Statement: This course is open to all students who meet the academic requirements for participation. Any student who has a need for accommodation based on the impact of a documented disability should contact the instructor privately to discuss the specific situation as soon as possible.
Disability Resources and Services at 215-204-1280 in 100 Ritter Annex (Main Campus).

CLASS ROOM CIVILITY AND ACADEMIC INTEGRITY
It is expected that you will behave with courtesy and civility towards others in the classroom. Please raise your hand when you have a question or comment. Curse words are unacceptable. Turn off cell phones and computers when entering the class. Our expectation is that your signature on any assignment or test means that you neither gave nor received unauthorized aid. Plagiarism is not acceptable in any form and is grounds for dismissal from Temple University.

GRADES Grades are based on the following criteria:
Discussion/Participation/Field Trip Check Lists 15%
Quiz 5%
Mid Term Exam 25%
Final Exam 25%
Project/essay 30%

REQUIRED BOOKS
The Science of Sustainable Design, 2nd edition by Mary Myers, Ph.D. Note: you will need the second edition as this is new and completely revised version of the textbook.
To purchase your textbook
Step 1: Log on to https://students.universityreaders.com/store/.
Step 2: Create an account or log in if you have an existing account to purchase.
Step 3: Easy-to-follow instructions will guide you through the rest of the ordering process. Payment can be made by all major credit cards or with an electronic check.

ADDITIONAL READINGS Check the Blackboard site for additional readings, discussion and website links. Information in the scientific and sustainable design fields is continuously updated. Contemporary and up-to-date articles will be featured on the course Blackboard site.

LATE WORK
No make up exams without a written medical excuse. Field trip checklists and projects are graded down for each day turned in late and not accepted after one week.
Schedule subject to change at instructors’ discretion
Readings may be added—check electronic blackboard
Check electronic blackboard for announcements of special lectures

August 27
Introduction – Conceptualizing the problem
Read: “Introduction” by Myers

August 29
Reasons for sustainable design: population, affluence, technology and climate change
Ecological Footprint Assignment described
Read: “Why is sustainable design important?” by Myers; Ecological Footprint assignment

September 3
Scientific Process and Understanding Science as a Critical Component of Sustainable Design
Matter and Energy
Ecological footprint assignment due
Read: “Science as a way of knowing” by Botkin and Keller

September 5
Cradle to Grave exercise
Read: “Polymers are forever” by Weisman and “Waste Equals Food” by McDonough and Braungart

September 10
Cradle to Cradle Explanation
Continuation of Matter and Energy;
Read: “Case Study of Interface Carpet” by Rosenberg

September 12
Biogeochemical cycles
Read: “The Biogeochemical Cycles” by Botkin and Keller
“Peak Phosphorus and why it matters” by Elser and White

September 17
Managing the environment as if it mattered
Read: “The Evolving Human Relationship with the Environment: Traditional Landscape Management” and “Enduring Design” by Myers

September 19
Field Trip

September 24
Matter and Energy in Buildings
Read: “More Profit with Less Carbon” by Lovins and “NMB Bank Headquarters” by Browning

September 26
Conjoined Nature
Read: “Conjoined Nature in Buildings” by Carrington
October 1
Biodiversity –
Read: Biological Diversity” by Botkin and Keller

October 3
Ecosystem Services
Read: Ecosystems and Their Services” by Millennium Ecosystem Assessment

October 8
Biodiversity case study
Midterm Review
Read: “Design on the Prairie” by Myers

October 10
Midterm exam

October 15
Green roofs
Read: “Elevating Habitat” by Coffman

October 17
Design Outlaws

October 22
Project Outlines due
Retrofitting Suburbia
Read: Retrofitting a Suburban Garden” by Myers

October 24
Hydrology – aquifers, watersheds
Land use responses to water issues
Read: “Water is Life” by Kingsolver

October 29
Case studies in stormwater design
Read: “The Hydrologic Cycle: case studies”

October 31 (Halloween)
Hydrologic Case Studies – stream restoration
Meet with project partners
Read: “Retrofitting Rocky Branch” by Myers

November 5
Kathleen Grady, AICP, LEED AP, Director of Sustainability for TU
Temple University’s Sustainability Objectives

November 7
Psychological and health aspects of design
Read: ““Human Adaptation to and need for nature: findings from psychology and evolutionary biology” by Myers and “The link between green space and health” by Myers
November 12
Project Due- All papers to be turned in today
Gallery Exhibit

November 14
Gallery Exhibit

November 19
Gallery Exhibit

November 21
Ethics
Read: “The Land Ethic” by Leopold

November 26
Sustainable Professions Presentations and Panel Discussion

November 28 – No class Thanksgiving

December 3 - Last Class
Final Exam review

December 10 (Tuesday)
Final Exam 5:45–7:45 p.m. in our classroom