Course Description
This 3-credit course is available as an elective to undergraduates wishing to learn the theory and practice of sustainability within their specific areas of interest. Emphasis is also on applications across differing disciplines. This is the gateway course for the Undergraduate Major and Minor Program in Sustainability. There are no prerequisites. Undergraduates from any college are eligible for this course whether majoring/minoring in Sustainability or not.

We examine the scientific and policy efforts to optimize the management of environmental, economic, and social resources. One of the most common sustainability definitions is from the The Brundtland Commission (1987): "... meeting the needs of the present generation without compromising the ability of future generations to meet their own needs." This cuts across almost all human endeavors and is applicable to programs in all of the Florida Tech Colleges.

Through lectures, readings, and class discussions, the course will examine issues essential to learning best practices in sustainability. Prominent issues include:
- the decomposition of complexity using systems thinking tools;
- human population trends and associated resource demands;
- energy use trends, including status quo and alternative production approaches;
- regional and global climate trends and implications, including policy alternatives;
- ocean and land ecosystems: trends and management alternatives;
- economic and social drivers, including triple bottom line business practices;
- market-based incentives; best practices for building design; community planning;
- communication and behavior: challenges and opportunities for sustainability advances.

Indicators to measure sustainability within differing disciplines will be examined. The roles of private, public, nonprofit, and other sectors will be comparatively examined across linked topics. Paths to applied solutions are emphasized - focusing on student interests.

When, Where, Instructor
Days and Time: Tue and Thur, 12:30-1:45
Room: Skurla Hall, Rm. 102. Canvas will be the course web portal for registered students.
Dr. K. Lindeman, Professor, Dept. of Education and Interdisciplinary Studies
Office: Shepard Bldg. Room 103
Office Hours: Tue: 2:00-4:00; Wed: 1200-2:00 and 4:30-5:30; Thu: 2:00-5:00. Other times by appointment: lindeman@fit.edu

Reading Materials and Course Schedule
There are many books on diverse sustainability issues; very few are organized as introductory textbooks. The primary book for this course is:

Course readings will also include technical journal articles, government and non-profit reports, and significant current articles from print and web media. These readings and assigned chapters from the books will be posted on Canvas. Once familiar with the diverse primary issues, the semester can include additional readings from these and other books:
- Many other items from a rapidly growing, interdisciplinary literature on sustainability principles and applications.

**Student Learning Outcomes**
- Increased knowledge of the conceptual history and logic of sustainability practices.
- Increased understanding of systems thinking tools and the decomposition of complexity.
- Increased understanding of real-world applications of current sustainability principles.
- Recognition of uncertainty envelopes and constraints on predictive knowledge.
- Ability to discuss common sustainability issues from multiple perspectives.
- Experience with the measurement of sustainability: utilizing indicators and other tools.
- Ability to apply best practices in sustainability to one’s specific field of interest.
- Ability to apply interdisciplinary approaches to sustainability outside of one’s field.
- Experience with the challenges and opportunities of applying science to governance.
- Improved critical reading and writing skills within both scientific and policy documents.
- Messaging skills needed to deliver scientific information to popular audiences.
- Experience in abstract theoretical evaluation of sustainability challenges and solutions.

**Working Course Schedule** - Subject to change according to breaking issues/opportunities.

Wk 1
- Introduction to the Class; Sustainability Basics; Our Social Capital
- Sustainability Concepts and Terms; Governance and Scales of Decision-Making

Wk 2
- Systems and Tools for Decomposing Complexity; Challenges and Opportunities
- Population Growth; Human Populations: Past and Future Trends

Wk 3
- Consumption Patterns; Ecological Footprints
- Food and Water Security: Status and Trends

Wk 4
- Climate and Energy: Past and Present; Status Quo, Alternatives, and Timing
- Energy and Climate: The Future; Roles of Technology and Markets

Wk 5
- Economics: Growth Trends; Ecosystem Services and Total Valuation
- Resources, Wealth Distribution and Quality of Life; Environmental Security

Wk 6
- The Five Guerillas and Springing System Traps; Discuss Term Papers
- Messaging: The Unavoidable Importance of Framing and Marketing Complex Ideas

Wk 7
- Review for Midterm
- Midterm Exam

Wk 8
- Fall Break – No Class on Tue.
- Review Midterm Exam Results
Wk 9
- Measuring Sustainability: Indicators and Certifications
- Demand-Side Tools incl. Certifications; Supply-Side Tools incl. Protected Areas
Wk 10
- Demand-Side and Supply-Side Tools
Wk 11
- Messaging: Going Deeper – Climate Science Examples
- Communication and Processing Complex Information
Wk 12
- Systems Interconnectivity among Primary Sustainability Challenges
- Springing Systems Traps: The Paradox of Growth
Wk 13
- Systems Interconnectivity: Economics-Climate-Governance
- Sustainability Solutions: Global Examples
Wk 14
- Topics Determined by Student Interest
- Sustainability Solutions: U.S. Examples
Wk 15
- Climate Adaptation; Coastal and Ocean Systems;
- Governance and Technological Innovations
Wk 16
- Review for Final
- No Class - Final Prep.
Wk 17 Finals Week
- Final Exam

Grading:
40% Homework and Quizzes
30% Midterm
30% Final exam

- Please see F.I.T.’s policy statement on plagiarism, posted on Canvas.
- Students can sharpen your writing skills with this tutorial: http://www.bristol.ac.uk/arts/exercises/grammar/grammar_tutorial/index.htm

Classroom Protocol
- Students enter class prepared to demonstrate knowledge of the latest assigned reading.
- In-class participation is expected and important. All students should measurably contribute to classroom discussions.
- Policies regarding use of electronics in class will be discussed during the first week.
- Please do not bring food into class.
- On-time attendance at each class meeting is expected - repetitive absences or tardies will indirectly and directly affect the course grade. Please consult with the instructor regarding partial or complete class absences.