UIUC's Sustainable Path:

Charting Campus Efforts towards Sustainability

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Team Illini Impact embarked on an in-depth exploration to assess how the University of Illinois integrates sustainability education across its diverse curriculum, spanning various colleges and departments. Our central question, "How does the curriculum at the University of Illinois foster education and awareness of sustainability goals?", guided our analysis, focusing on the university's alignment with the United Nations' Sustainable Development Goals (SDGs).

We sourced and cleaned data from the university's official websites to ensure accuracy in our findings. This report aims to consolidate the university's efforts in promoting sustainability education, highlighting its significant contributions through sustainability-focused courses.

Our objective is to showcase the university's commitment to sustainability, promote its commendable work, and attract prospective students passionate about sustainability. By doing so, we aim to drive revenue and funding to the sustainability department and inspire other institutions to prioritize sustainability education.

DATA:

In our research, we tapped into valuable data sources such as the Institute of Sustainability and Energy and Environment (ISEE) website and the university's course catalogue. These rich repositories provided us with essential information, including course numbers, titles, descriptions, and the terms courses were offered. To harness this data effectively, we employed a variety of techniques such as data mining, extraction, and web scraping. These methods allowed us to gather pertinent information and manipulate it to create datasets conducive to our visualization needs and the questions we aimed to address.

Our approach involved utilizing a range of technologies to streamline our data exploration process. We leveraged familiar tools like Excel for initial data manipulation, Python libraries such as Pandas and Beautiful Soup for web scraping, and SQL for deeper data exploration. Additionally, Tableau emerged as a powerful ally in transforming our datasets into visually compelling insights. Through this multi-faceted approach, we were able to unlock valuable insights about sustainability efforts at UIUC, paving the way for informed decision-making and impactful analysis.

ANALYSIS:

Course Offerings across the university
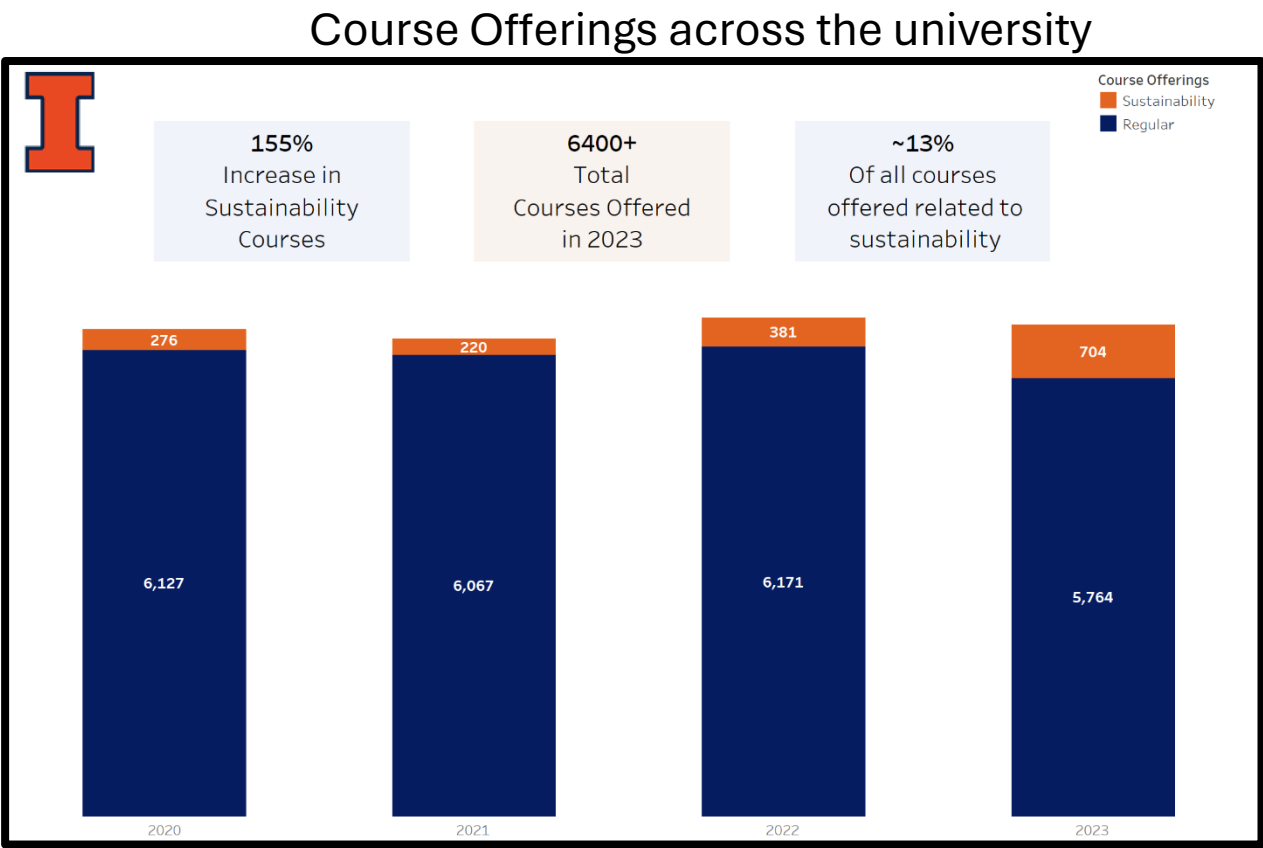
The above graph illustrates the comparison between the total number of courses offered at the University of Illinois Urbana-Champaign and the subset of sustainability courses over the years. The graph provides a clear depiction of the growth in sustainability-focused offerings amidst the broader landscape of academic curriculum at UIUC.

The key findings from the graph can be summarized as follows:

1.Significant Increase in Sustainability Courses: The visualization demonstrates a remarkable surge in sustainability courses offered from 2020 to 2023. Specifically, there is an increase of 155% in the number of sustainability courses during this period. This substantial growth underscores the university's heightened emphasis on integrating sustainability principles across its academic programs.

2.Total Courses Offered in 2023: In 2023, the data reveals that a total of 6,552 courses were offered at UIUC across various disciplines. This figure provides insight into the extensive range of academic offerings available to students, showcasing the university's commitment to providing a diverse and comprehensive educational experience.

3.Resilience of Sustainability Course Offerings: Despite a slight decrease of 1.28% in the total number of courses offered from 2022 to 2023, the number of sustainability courses experienced a notable increase of approximately 85% during the same period. This finding highlights the resilience and growth trajectory of sustainability-focused education within the university, even amidst fluctuations in overall course offerings.

Word Cloud of Sustainability Themes in 2023

The university's several departments across colleges have meticulously designed courses keeping the United Nations' 17 Sustainability Development Goals and continues its efforts to develop courses that better align with them. The following visualization shows the breakdown of total sustainability related courses offered at the University of Illinois during the year 2023 mapped according to the 17 UN Sustainability Development Goals.
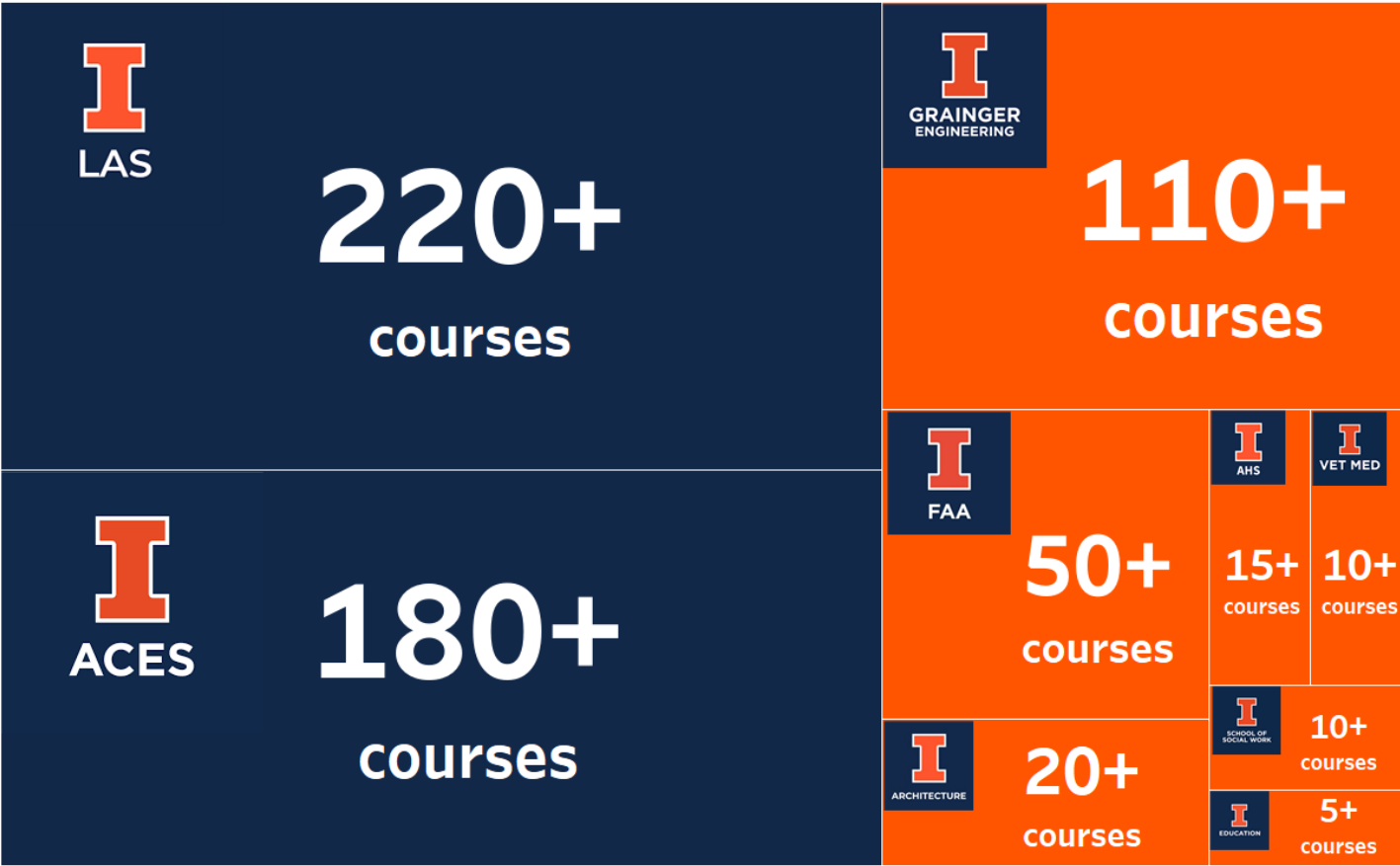

The top 3 most commonly occurring Sustainability Development Goals are:

- Goal #6: Clean Water and Sanitation (54 courses)

- Goal #13: Climate Action (52 courses)

- Goal #7: Affordable and Clean Energy (28 courses)

This visualization can help relevant stakeholders to identify which SDGs are well aligned with the courses designed at the university and which goals need to be better incorporated in courses to provide a holistic and well-developed sustainability infused curriculum.

Breakdown of Sustainability related courses by College:

LAS	Grainger Engineering
220+ courses	**110+** courses
ACES **180+** courses	**FAA 50+** courses; **AHS 15+** courses; **VET MED 10+** courses; **School of Social Work 10+** courses; **Architecture 20+** courses; **Education 5+** courses

The top 3 colleges with the most sustainability related courses are:

-       College of Liberal Arts and Sciences (LAS): 224 courses

-       College of Agricultural, Consumer and Environmental Sciences (ACES): 189 courses

-       The Grainger College of Engineering: 115 courses

This tree map allows stakeholders to get a snapshot of the sustainability efforts in the curriculum segmented by colleges which can be used by used marketing and communication teams across various departments/colleges to promote sustainability efforts.

DEGREES RELATED TO SUSTAINABILITY WITH CONCENTRATIONS(IF ANY)

Year	Degree	Major name	Concentration name
2020	BS	Agr & Consumer Economics	Consumer Economics & Finance
			Agribusiness Markets & Mgmt
			Financial Planning
			Public Policy and Law
			Agri-Accounting
			Finance in Agri-Business
			Envirnmntal Economics & Policy
			Policy, Intl Trade, & Dvlpmt
			Farm Management
		Crop Sciences	Agroecology
		Natural Resrcs & Environ Sci	Humn Dimnsns of the Environmnt
			Fish and Wildlife Conservation
		Sustainable Design	
	BSLAS	Earth, Soc, Env Sustainability	Society and the Environment
			Science of the Earth System
	DVM	Veterinary Medicine	
	MENGR	Engineering	Energy Systems
	MS	Environ Engr in Civil Engr	
		Geography	Geographic Information Science
			Computational Sci & Engr
		Sustainable Urban Management	
	PHD	Environ Engr in Civil Engr	
			Computational Sci & Engr
		Geography	
			Computational Sci & Engr

DEGREES RELATED TO SUSTAINABILITY WITH CONCENTRATIONS(IF ANY)

Year	Degree	Major name	Concentration Name
2023	BS	Agr & Consumer Economics	Consumer Economics & Finance
			Financial Planning
			Agribusiness Markets & Mgmt
			Public Policy and Law
			Agri-Accounting
			Finance in Agri-Business
			Envirnmntal Economics & Policy
			Policy, Intl Trade, & Dvlpmt
			Farm Management
		Crop Sciences	Agroecology
		Environmental Engi..	
		Natural Resrcs & En..	Humn Dimnsns of the Environmnt
		Sustainable Design	
	BSLAS	Earth, Soc, Env Sustainability	Society and the Environment
			Science of the Earth System
	DVM	Veterinary Medicine	
	MENGR	Engineering	Energy Systems
	MS	Environ Engr in Civil..	
	MSUD	Sustainable Urban ..	
	PHD	Environ Engr in Civil Engr	
			Computational Sci & Engr
		Geography	
			Computational Sci & Engr

The visualization displays enrolment numbers in sustainability-related degree programs, including any concentrations. Two tables are presented for the years 2020 and 2023. From the data, it's evident that there has been an increase in course enrolments over the years. Additionally, several courses have updated their core degree titles and are now categorized under new programs. Overall, there is a rising trend in enrolment when comparing the two years.
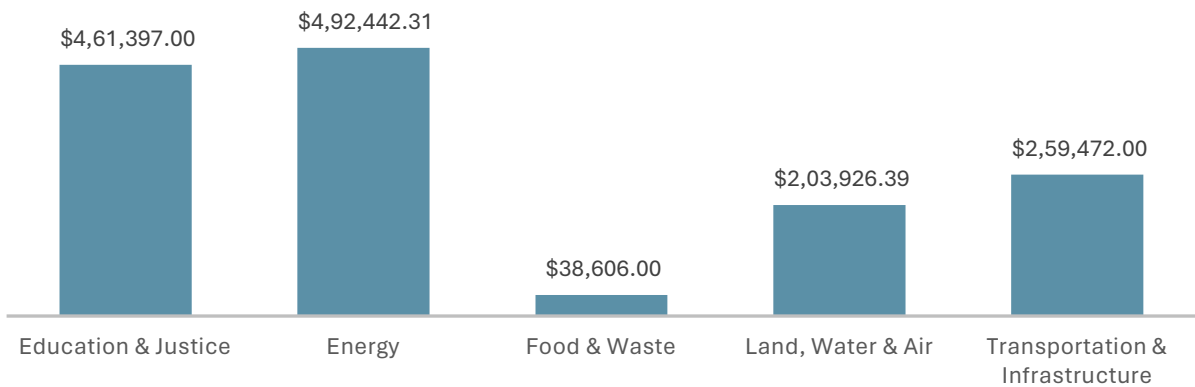
Sustainability Beyond Academics
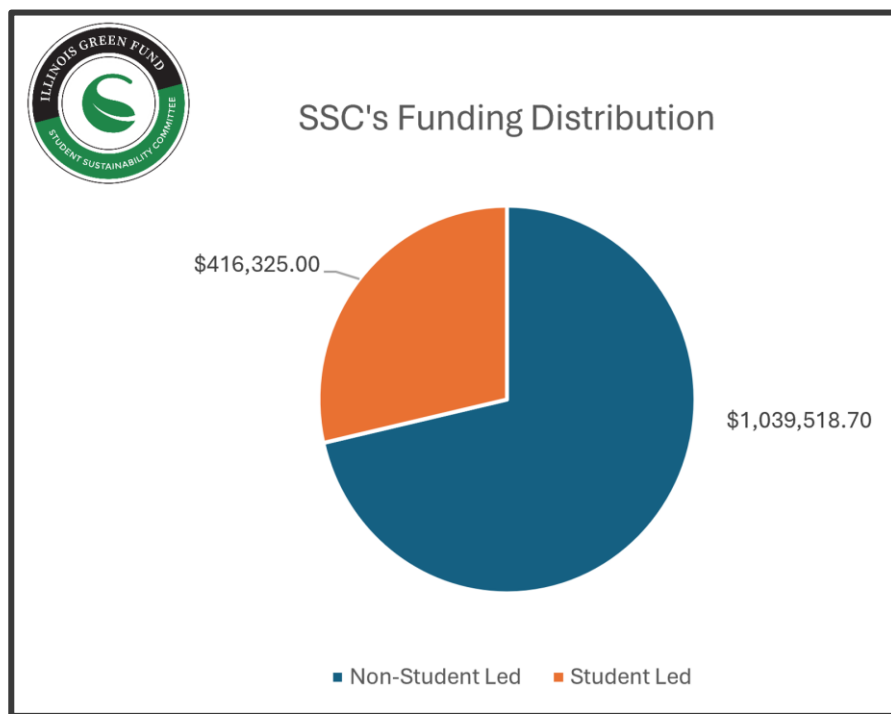
The University's sustainability efforts also extend beyond just course offerings. Students can actively engage with various Registered Student Organizations (RSOs) registered with the university to make a meaningful contribution to sustainability goals. One of the major such organizations is the Illinois Green Fund (IGF), which stands as North America's largest university sustainability funding pool. Managed by the Student Sustainability Committee (SSC), the IGF plays a pivotal role in fostering a culture of environmental care and responsibility on campus, allocating over $1.5 million annually towards environmentally impactful projects.

Funding by SSC in various working groups(Student and Non Student)

$4,61,397.00 — Education & Justice
$4,92,442.31 — Energy
$38,606.00 — Food & Waste
$2,03,926.39 — Land, Water & Air
$2,59,472.00 — Transportation & Infrastructure

This not only underscores the university community's commitment to sustainability but also empowers students, staff, and faculty to spearhead sustainability efforts through consultation, leadership, and funding support. Students as well as faculty/staff members can work on 5 different areas of choice such as energy, food & waste, land-water-air, education & justice, and transportation & infrastructure, ensuring a comprehensive approach to sustainability across campus operations and initiatives.

Recommendations

- **Align Courses with SDGs:**

Encourage departments to align their courses more closely with specific SDGs, fostering a targeted approach to addressing global sustainability challenges and promoting interdisciplinary solutions.

- **Promote Equity in Course Offerings:**

Ensure equitable distribution of sustainability courses across colleges and departments, promoting equal access to sustainability education for all students.

- **Enhance Outreach and Engagement:**

Implement strategies to increase awareness and interest in sustainability-focused programs, attracting a broader range of students and fostering a culture of sustainability across the university.

References

Student Enrollment dataset link

Enrollment Dataset Link

UIUC Sustainability Courses

Course Explorer

UN's SDG

Tools Used:

Tableau – Data visualisations

Data scraping – Python libraries and Google Colab

https://colab.research.google.com/drive/1Vr0ycHuZ9heSegjoYeccnj8Vg6BIasS-?usp=sharing