SUSTAINABILITY PROGRAM

Major:

- Bachelor of Arts, Sustainability (p. 1)
- Bachelor of Science, Sustainability (p. 3)

Concentrations:

- Food Systems (Bachelor of Arts) (p. 2)
- Urban Sustainability (Bachelor of Arts) (p. 3)
- Energy (Bachelor of Science) (p. 4)
- Sustainable Watersheds (Bachelor of Science) (p. 5)

Minor:

- Sustainability (p. 6)

The Sustainability Program at the University of Dayton connects passion, purpose and vocation. In addition to instilling a strong sustainability ethic, the program integrates a transdisciplinary perspective through which students gain knowledge of social, cultural, and political dimensions of sustainability from the local to global scale. With faculty from across the university, students address the integral connection between natural and social systems. Students develop a basic knowledge in systems thinking, ethics and environmental justice, community engagement, urban design and development, ecology and resource management, not only to understand the complex questions and challenges they will face in the workplace, but also to communicate ways to respond to those challenges.

Each student works closely with a faculty advisor and affiliate faculty in developing a vocational pathway through coursework, research and experiential learning. Students benefit from a broad range of courses that provide a holistic perspective on sustainability, as well as disciplinary and methods courses carefully selected to enhance student skills and technical knowledge. Community-engaged learning, a capstone project working with community partners, the opportunity for study abroad, and local work-experience opportunities provide students with experience beyond the classroom and the university campus.

Highly engaged mentoring and collaborative research opportunities provide a significant advantage for those students entering the workforce, or a graduate program in a related field. The program offers both a Bachelor of Science and Bachelor of Arts, with specific concentrations required to complete the degree. Graduates in the growing field of of Sustainability find jobs in clean energy, community organizing, technology, education, management, planning, business and more.

FACULTY LISTING

Bachelor of Arts, Sustainability (SUS) minimum 124 hours

The Bachelor of Arts in Sustainability is an integrated degree that prepares students for careers in Sustainability-related fields requiring a broad range of skills. The Bachelor of Arts integrates social, cultural, and political dimensions of sustainability with a focus on leadership and community engagement. Graduates of the program are highly adept in communicating and learning across the arts and sciences, while concentrated study in either Urban Sustainability or Food Systems prepares students for careers in:

- sustainability consulting or planning
- community organizing with non-profit and faith-based organizations
- marketing and business communication or management
- sustainability assessment, education and outreach

Students (in consultation with their advisors) must declare an area of concentration in either Food Systems or Urban Sustainability, preferably by the time they reach Junior standing. The alignment between the Bachelor of Arts in Sustainability and the Common Academic Program makes it possible to double-major in another academic discipline and still complete both degrees in four years. Courses taken for the major may also count toward completion of the Common Academic Program and the Liberal Studies Curriculum.

The Common Academic Program (CAP) is an innovative curriculum that is the foundation of a University of Dayton education. It is a learning experience that is shared in common among all undergraduate students, regardless of their major. Some CAP requirements must be fulfilled by courses taken at UD (e.g., Capstone and Diversity and Social Justice). Some major requirements must also be fulfilled by courses taken at UD. Students should consult with their advisor regarding applicability of transfer credit to fulfill CAP and major program requirements.

Common Academic Program (CAP) [1]		
First-Year Humanities Commons [2]		12 cr. hrs.
HST 103	Introduction to Global Historical Studies	
REL 103	Introduction to Religious and Theological Studies	
PHL 103	Introduction to Philosophy	
ENG 100	Writing Seminar I [3]	
Second-Year Writing Seminar [4]		0-3 cr. hrs.
ENG 200	Writing Seminar II	
Oral Communication		3 cr. hrs.
CMM 100	Principles of Oral Communication	
Mathematics		3 cr. hrs.
Social Science		3 cr. hrs.
Arts		3 cr. hrs.
Natural Sciences [5]		7 cr. hrs.
Crossing Boundaries		up to 12 cr. hrs.

Faith Traditions	
Practical Ethical Action	
Inquiry	
Integrative	
Advanced Study	
Philosophy and/or Religious Studies (6 cr. hrs.)	
Historical Studies (3 cr. hrs.) [6]	
Diversity and Social Justice [7]	3 cr. hrs.
Major Capstone [8]	0-6 cr. hrs.

1 The credit hours listed reflect what is needed to complete each CAP component. However, they should not be viewed as a cumulative addition to a student's degree requirements because many CAP courses are designed to satisfy more than one CAP component (e.g., Crossing Boundaries and Advanced Studies) and may also satisfy requirements in the student's major.
2 May be completed with ASI 110 and ASI 120 through the Core Program.
3 May be completed with ENG 100A and ENG 100B, by placement.
4 May be completed with ENG 114 or ENG 198 or ASI 120.
5 Must include two different disciplines and at least one accompanying lab.
6 May be completed with ASI 110 and ASI 120 through the Core Program.
7 May not double count with First-Year Humanities Commons, Second-Year Writing, Oral Communication, Social Science, Arts, or Natural Sciences CAP components, but may double count with courses taken to satisfy other CAP components and/or courses taken in the student's major.
8 The course or experience is designed by faculty in each major; it may, or may not, be assigned credit hours.

Liberal Studies Curriculum	
Creative and Performing Arts (May include CAP Arts)	3
L2 Proficiency (Proficiency in a language other than English)	0-11
Literature (May include CAP Components)	3
Mathematics, excluding MTH 205 (Satisfies CAP Mathematics)	3
Natural Sciences (Satisfies CAP Natural Science)	11
Social Sciences (Includes CAP Social Science)	12

Major Requirements		**64-68**
Required Core Courses		**18**
SEE 250	Introduction to Sustainability, Energy & the Environment	
SEE 280	Sustainable Communities	
SEE 310	Sustainability Scenarios	
SEE 322	Cities and Suburbs: Urban Sustainability	
SEE 325	Sustainable Development Goals	
SEE 340	Food, Energy and Water Nexus	
Select one Arts course from the following:		**3**
SEE 303	Constructions of Place	
VAR 350	Art and Social Practice	
Select one Science course from the following:		**3**
SEE 301	Earth Systems & Global Climate Change	
BIO 310	Ecology	
GEO 208	Environmental Geology	
GEO 308	Problems & Decisions in Environmental Geology	
Experiential Learning		**3-6**
Select 3-6 credit hours in designated experiential learning courses		
SEE 401	Sustainability Research I	
SEE 398L	Experiential Learning Laboratory	
Sustainability Capstone		**3**
SEE 402	Sustainability Research II	
Vocational Concentration		**34-35**
Select one advisor-approved vocational concentration from the following:		
Food Studies Concentration		
Urban Sustainability Concentration		
Breadth		
ASI 150	Introduction to the University Experience	1
Total Hours to total at least		124

Food Systems Concentration (FSS)

Food Systems Concentration		**34-35**
Select three courses from the following:		**9-10**
HSS 210 & 210L	Introductory Foods and Introductory Foods Laboratory	
HSS 295	Nutrition & Health	
HSS/SOC 384	Food Justice	
HST 379	History of Food	
Required methods course:		**4**
GEO 450	Applied Geographic Information Systems	
Select one course from the following:		**3**
ENG 369	Writing in Organizations	
ENG 370	Report & Proposal Writing	
ENG 392	Writing for Grants and Non-Profits	
Select six courses from the following:		**18**
ANT 340	Place, Culture, and Social Justice	
SEE 323	Cities and Energy	
ECO 435	Economics of the Environment	
HSS/SOC 384	Food Justice	
HRS 392	Human Rights and Development in Africa	
HST 309	Dangerous Work and Disaster Capitalism	
HST 355	American Urban History	
HST 359	History of American City Planning	
HST 390	History of Human Rights	
HST 394	Animal History: A Global History of Human-Animal Relations	
HST 395	Climate History: A Global History of the Human-Climate Interface	
PHL 321	Environmental Ethics	
PHL 335	Philosophy of Sustainability	
PHL 371	Philosophy & Human Rights	
PHL 374	Philosophy and the City	
POL 333	Politics of Human Rights	
POL 371	Environmental Policy	

POL 392	Human Rights and Development in Africa
REL 269	Faith Traditions and Care for the Earth
REL 365	Christian Theology and Environmental Ethics
SEE 390	Special Topics in Sustainability, Energy and the Environment
SEE 490	Experiential Study in Sustainability, Energy and the Environment
SOC 309	Community Practice & Research
SOC 339	Social Inequality
SOC 342	Social Movements
SOC 371	Sociology of Human Rights
SOC 426	Leadership in Building Communities
SPN 387	Sustainability in Spanish

Urban Sustainability Concentration (USS)

Urban Sustainability Concentration		**34**
Choose Three Courses		**9**
SEE 323	Cities and Energy	
HST 355	American Urban History	
HST 359	History of American City Planning	
POL 426	Leadership in Building Communities	
SWK 303	Community Practice & Research	
SOC 309	Community Practice & Research	
SOC 351	Urban Sociology	
SOC 426	Leadership in Building Communities	
Required methods course		**4**
GEO 450	Applied Geographic Information Systems	
Select one from the following:		**3**
ENG 369	Writing in Organizations	
ENG 370	Report & Proposal Writing	
ENG 392	Writing for Grants and Non-Profits	
Select six from the following:		**18**
ANT 340	Place, Culture, and Social Justice	
ECO 435	Economics of the Environment	
HRS 392	Human Rights and Development in Africa	
HSS/SOC 384	Food Justice	
HST 309	Dangerous Work and Disaster Capitalism	
HST 379	History of Food	
HST 390	History of Human Rights	
HST 394	Animal History: A Global History of Human-Animal Relations	
HST 395	Climate History: A Global History of the Human-Climate Interface	
PHL 321	Environmental Ethics	
PHL 335	Philosophy of Sustainability	
PHL 371	Philosophy & Human Rights	
PHL 374	Philosophy and the City	
POL 333	Politics of Human Rights	
POL 371	Environmental Policy	
POL 392	Human Rights and Development in Africa	
REL 269	Faith Traditions and Care for the Earth	
REL 365	Christian Theology and Environmental Ethics	
SEE 390	Special Topics in Sustainability, Energy and the Environment	
SEE 490	Experiential Study in Sustainability, Energy and the Environment	
SOC 339	Social Inequality	
SOC 342	Social Movements	
SOC 371	Sociology of Human Rights	
SPN 387	Sustainability in Spanish	

Bachelor of Science, Sustainability (SUS) minimum 120 hours

The Bachelor of Science in Sustainability is an integrated degree that prepares students for careers in the rapidly evolving sustainability sector, especially where strong scientific and analytical skills are required. Graduates of the program are highly adept in both communicating and problem solving, as well as in quantitative methods and data analysis. The Bachelor of Science in Sustainability prepares students for careers with

- government agencies
- nongovernmental organizations
- public utilities
- regulatory bodies
- commercial firms and businesses

Students (in consultation with their advisors) must declare an area of concentration in either Energy or Sustainable Watersheds, preferably by the time they reach Junior standing. The alignment between the Bachelor of Science in Sustainability and the Common Academic Program makes it possible to double-major in another academic discipline and still complete both degrees in four years. Courses taken for the major may also count toward completion of the Common Academic Program and the Liberal Studies Curriculum.

The Common Academic Program (CAP) is an innovative curriculum that is the foundation of a University of Dayton education. It is a learning experience that is shared in common among all undergraduate students, regardless of their major. Some CAP requirements must be fulfilled by courses taken at UD (e.g., Capstone and Diversity and Social Justice). Some major requirements must also be fulfilled by courses taken at UD. Students should consult with their advisor regarding applicability of transfer credit to fulfill CAP and major program requirements.

Common Academic Program (CAP) [1]		
First-Year Humanities Commons [2]		12 cr. hrs.
HST 103	Introduction to Global Historical Studies	
REL 103	Introduction to Religious and Theological Studies	
PHL 103	Introduction to Philosophy	
ENG 100	Writing Seminar I [3]	
Second-Year Writing Seminar [4]		0-3 cr. hrs.
ENG 200	Writing Seminar II	

Oral Communication		3 cr. hrs.
CMM 100	Principles of Oral Communication	
Mathematics		3 cr. hrs.
Social Science		3 cr. hrs.
Arts		3 cr. hrs.
Natural Sciences [5]		7 cr. hrs.
Crossing Boundaries		up to 12 cr. hrs.
Faith Traditions		
Practical Ethical Action		
Inquiry		
Integrative		
Advanced Study		
Philosophy and/or Religious Studies (6 cr. hrs.)		
Historical Studies (3 cr. hrs.) [6]		
Diversity and Social Justice [7]		3 cr. hrs.
Major Capstone [8]		0-6 cr. hrs.

1 The credit hours listed reflect what is needed to complete each CAP component. However, they should not be viewed as a cumulative addition to a student's degree requirements because many CAP courses are designed to satisfy more than one CAP component (e.g., Crossing Boundaries and Advanced Studies) and may also satisfy requirements in the student's major.

2 May be completed with ASI 110 and ASI 120 through the Core Program.

3 May be completed with ENG 100A and ENG 100B, by placement.

4 May be completed with ENG 114 or ENG 198 or ASI 120.

5 Must include two different disciplines and at least one accompanying lab.

6 May be completed with ASI 110 and ASI 120 through the Core Program.

7 May not double count with First-Year Humanities Commons, Second-Year Writing, Oral Communication, Social Science, Arts, or Natural Sciences CAP components, but may double count with courses taken to satisfy other CAP components and/or courses taken in the student's major.

8 The course or experience is designed by faculty in each major; it may, or may not, be assigned credit hours.

MAJOR REQUIREMENTS

Sustainability Core		
Students take the following foundation courses:		21
SEE 250	Introduction to Sustainability, Energy & the Environment	
SEE 280	Sustainable Communities	
SEE 301	Earth Systems & Global Climate Change	
SEE 322	Cities and Suburbs: Urban Sustainability	
SEE 325	Sustainable Development Goals	
SEE 340	Food, Energy and Water Nexus	
SEE 435	System Modeling for Sustainability	
Students select one course from the following (arts):		3
SEE 303	Constructions of Place	
VAR 350	Art and Social Practice	
Students select one course from the following (economics and society):		3
SEE 323	Cities and Energy	
POL 371	Environmental Policy	
ECO 435	Economics of the Environment	
ECO 441	Econometrics	
SEE 310	Sustainability Scenarios	
SEE 390	Special Topics in Sustainability, Energy and the Environment [1]	
Experiential Learning		**3-6**
Students take at least 3 and no more than 6 credit hours in designated experiential learning courses.		
SEE 401	Sustainability Research I	
SEE 398L	Experiential Learning Laboratory	
SEE 490	Experiential Study in Sustainability, Energy and the Environment	
Vocational Concentration		**49-54**
Select one advisor-approved vocational concentration from the following:		
Energy Concentration		
Sustainable Watersheds Concentration		
Capstone		
SEE 402	Sustainability Research II	3

Energy Concentration (NRG)

Energy Concentration		**53-55**
Core science and technical		**32-33**
Students take:		9
PHY 206	General Physics I - Mechanics	
PHY 207	General Physics II - Electricity & Magnetism	
EGR 202	Engineering Thermodynamics	
Students select two of the following courses with accompanying labs:		8
BIO 151 & 151L	Concepts of Biology I: Cellular & Molecular Biology and Concepts of Biology Laboratory I: Cellular & Molecular Biology	
BIO 152 & 152L	Concepts of Biology II: Evolution & Ecology and Concepts of Biology Laboratory II: Evolution & Ecology	
CHM 123 & 123L	General Chemistry and General Chemistry Laboratory	
CHM 124 & 124L	General Chemistry and General Chemistry Laboratory	

GEO 109 & 109L	Earth, Environment, and Society and Earth, Environment, and Society Lab	
or GEO 115 & 115L	Physical Geology and Physical Geology Laboratory	
GEO 116 & 116L	Geological History of the Earth and Geological History of the Earth Laboratory	
or GEO 208 & 208L	Environmental Geology and Environmental Geology Laboratory	
GEO 208 & 208L	Environmental Geology and Environmental Geology Laboratory	
Core mathematics:		12
MTH 168	Analytic Geometry & Calculus I	
MTH 169	Analytic Geometry & Calculus II	
MTH 218	Analytic Geometry & Calculus III	
Students select one course from the following:		3-4
MTH 207	Introduction to Statistics	
MTH 367	Statistical Methods I	
DSC 210	Statistics for Business I	
PSY 216	Elementary Statistics	
SOC 308	Data Analysis	
BIO 439	Analysis & Interpretation of Biological Data	
Supporting technical and social		**12-13**
Students take the following:		6
ECO 203	Principles of Microeconomics	
SEE 323	Cities and Energy	
Students select one course from the following (methods):		3-4
GEO 450	Applied Geographic Information Systems	
GEO 455	Environmental Remote Sensing	
MEE 457	Building Energy Informatics	
Students select one of the following:		3
ENG 370	Report & Proposal Writing	
ENG 392	Writing for Grants and Non-Profits	
Students select three courses from the following:		**9**
EGR 374	Sustainable Energy Analysis and Economics	
MEE 420	Energy Efficient Buildings	
MEE 456	Energy Systems Engineering	
MEE 457	Building Energy Informatics	
MEE 472	Design for Environment	
MEE 473	Renewable Energy Systems	
MEE 474	Sustainable Energy Systems in Developing Countries	
SEE 390	Special Topics in Sustainability, Energy and the Environment [1]	
SEE 490	Experiential Study in Sustainability, Energy and the Environment [1]	

1. When on energy-related topic and with approval of student's advisor for the major..

1.When on an energy-related topic and with approval of student's advisor for the major.

Sustainable Watersheds Concentration (WAT)

Sustainable Watersheds		**49-53**
Students take:		**12**
BIO 151 & 151L	Concepts of Biology I: Cellular & Molecular Biology and Concepts of Biology Laboratory I: Cellular & Molecular Biology	
BIO 152 & 152L	Concepts of Biology II: Evolution & Ecology and Concepts of Biology Laboratory II: Evolution & Ecology	
GEO 109 & 109L	Earth, Environment, and Society and Earth, Environment, and Society Lab	
or GEO 115 & 115L	Physical Geology and Physical Geology Laboratory	
Students select two lectures and one lab from:		**7**
GEO 116 & 116L	Geological History of the Earth and Geological History of the Earth Laboratory	
or GEO 208 & 208L	Environmental Geology and Environmental Geology Laboratory	
CHM 123 & 123L	General Chemistry and General Chemistry Laboratory	
CHM 124 & 124L	General Chemistry and General Chemistry Laboratory	
PHY 201 & 201L	College Physics I and College Physics Laboratory I	
or PHY 206 & PHY 210L	General Physics I - Mechanics and General Physics Laboratory I	
PHY 202 & 202L	College Physics II and General Physics Laboratory	
or PHY 207 & PHY 211L	General Physics II - Electricity & Magnetism and General Physics Laboratory II	
Students select one of the following courses:		**3-4**
MTH 148	Introductory Calculus I	
MTH 168	Analytic Geometry & Calculus I	
And students take one additional course in MTH or CPS. MTH 137, MTH 207 or MTH 367 satisfy this requirement.		3-4
Students select one of the following courses:		**3**
MTH 207	Introduction to Statistics	
MTH 367	Statistical Methods I	
DSC 210	Statistics for Business I	
PSY 216	Elementary Statistics	
SOC 308	Data Analysis	
Students select one course from:		**3**
ENG 369	Writing in Organizations	
ENG 370	Report & Proposal Writing	
ENG 392	Writing for Grants and Non-Profits	
Students select one from the following (methods):		**3-4**
BIO 439	Analysis & Interpretation of Biological Data	
GEO 450	Applied Geographic Information Systems	
GEO 455	Environmental Remote Sensing	
Biology and Geology required		**12**
BIO 310	Ecology	
BIO 310L	Ecology Laboratory	
BIO 452	Biology of Rivers & Lakes	
BIO 452L	Biology of Rivers & Lakes Laboratory	
GEO 309	Surface & Groundwater Hydrology	
GEO 309L	Surface and Groundwater Hydrology Laboratory	
Electives in Sustainable Watersheds; students select two courses from the following:		**6-8**

BIO 409	Ecological Restoration
BIO 459	Environmental Ecology
BIO 461	Invertebrate Zoology
CEE 313 & 313L	Hydraulics and Hydraulics Laboratory
CEE 333	Water Resources Engineering
CEE 434 & 434L	Water & Wastewater Engineering and Water & Wastewater Engineering Laboratory
CHM 313	Organic Chemistry
GEO 307	Geomorphology
GEO 308	Problems & Decisions in Environmental Geology
GEO 412	Introductory Geochemistry

Minor in Sustainability

Students earn the Sustainability, Energy and the Environment (SEE) Minor by completing a minimum of 15 semester hours (5 approved courses). Many of those courses fulfill CAP requirements. All students take SEE 250: Introduction to Sustainability. Remaining courses often emphasize learning across disciplines and project-based research. Working with the University of Dayton Hanley Sustainability Institute and community partners, students in the minor have the opportunity to collaborate in the planning and implementation of sustainable solutions both on campus and in the Dayton area. Students in Sustainability classes have initiated several projects in sustainability education, waste reduction, campus energy uses, and community resilience and art.

Sustainability, Energy and the Environment [1]		
SEE 250	Introduction to Sustainability, Energy & the Environment	3
SEE Core		6-9
Select two or three courses (6-9 hours) from:		
SEE 280	Sustainable Communities	
ASI 320	Cities & Energy	
SEE 301	Earth Systems & Global Climate Change	
SEE 303	Constructions of Place	
SEE 310	Sustainability Scenarios	
SEE 315	Risk Analysis and Communication	
SEE 322	Cities and Suburbs: Urban Sustainability	
SEE 325	Sustainable Development Goals	
SEE 340	Food, Energy and Water Nexus	
SEE 390	Special Topics in Sustainability, Energy and the Environment	
SEE 401	Sustainability Research I	
SEE 402	Sustainability Research II	
SEE 435	System Modeling for Sustainability	
SEE 490	Experiential Study in Sustainability, Energy and the Environment	
Science Dimensions		
Select one or two courses (3-7 hours) from: [2]		3-7
BIO 310	Ecology	
BIO 370	Conservation Biology	
BIO 407	Plant Diversity & Ecology	
BIO 409	Ecological Restoration	
BIO 452	Biology of Rivers & Lakes	
BIO 459	Environmental Ecology	
BIO 466	Biology of Infectious Disease	
CEE 333	Water Resources Engineering	
CEE 434	Water & Wastewater Engineering	
CEE 463	Hazardous Waste Engineering	
EGR 330	Engineering Design & Appropriate Technology	
EGR 374	Sustainable Energy Analysis and Economics	
GEO 208	Environmental Geology	
GEO 218	Geological Site Investigation for Engineers	
GEO 302	Glacial Geology	
GEO 308	Problems & Decisions in Environmental Geology	
GEO 309	Surface & Groundwater Hydrology	
GEO 450	Applied Geographic Information Systems	
GEO 455	Environmental Remote Sensing	
MEE 420	Energy Efficient Buildings	
MEE 457	Building Energy Informatics	
MEE 461	Solar Energy Engineering	
MEE 462	Geothermal Energy Engineering	
MEE 463	Wind Energy Engineering	
MEE 464	Sustainable Energy Systems	
MEE 472	Design for Environment	
MEE 473	Renewable Energy Systems	
MEE 474	Sustainable Energy Systems in Developing Countries	
MFG 438	Sustainable Manufacturing & Product Design	
Human Dimensions		
Select one or two courses (3-6 hours) from:		3-6
ANT 325	Anthropology of Human Rights	
ANT 340	Place, Culture, and Social Justice	
ECO 435	Economics of the Environment	
ECO 460	Economic Development & Growth	
ECO 485	Urban & Regional Economics	
ENG 342	Literature and the Environment	
GLC 337	Green Germany, Sustainability and Environmental Justice	
HRS 392	Human Rights and Development in Africa	
HSS 302	Community Nutrition	
HSS/SOC 384	Food Justice	
HST 342	Environmental History	
HST 355	American Urban History	
HST 359	History of American City Planning	
HST 379	History of Food	
HST 390	History of Human Rights	
HST 394	Animal History: A Global History of Human-Animal Relations	
HST 395	Climate History: A Global History of the Human-Climate Interface	
PHL 321	Environmental Ethics	
PHL 334	Philosophy & Ecology	
PHL 335	Philosophy of Sustainability	
PHL 371	Philosophy & Human Rights	
POL 333	Politics of Human Rights	
POL 371	Environmental Policy	
POL 392	Human Rights and Development in Africa	

REL 269	Faith Traditions and Care for the Earth
REL 365	Christian Theology and Environmental Ethics
REL 472	Ecology & Religion
SOC 339	Social Inequality
SOC 342	Social Movements
SOC 351	Urban Sociology
SOC 371	Sociology of Human Rights
SOC 384	Food Justice
SPN 387	Sustainability in Spanish
SWK 335	Social Work & Environmental Justice
VAR 350	Art and Social Practice
Total Hours	**15-25**

- Bachelor of Arts, Food Systems Concentration (p. 7)
- Bachelor of Arts, Urban Sustainability Concentration (p. 7)
- Bachelor of Science, Energy Concentration (p. 8)
- Bachelor of Science, Watershed Concentration (p. 8)

Bachelor of Arts, Food Systems Concentration

First Year

Fall	Hours	Spring	Hours
ASI 150	1	HST 103	3
CMM 100	3	PHL 103	3
SEE 250	3	SCI 190	3
ENG 100	3	SCI 190L	1
REL 103	3	SEE 280	3
	13		**13**

Second Year

Fall	Hours	Spring	Hours
ENG 200	3	HSS 295	3
MTH 207	3	SCI 230	3
SEE 322	3	L2 Proficiency (proficiency in a language other than English)	4
SEE 325	3	Elective	3
SCI 210	3	SSC 200	3
SCI 210L	1		
	16		**16**

Third Year

Fall	Hours	Spring	Hours
HSS 210 & 210L	4	ENG 370	3
HST 379	4	SEE 301	3
SEE 303	3	SEE 340	3
L2 Proficiency (proficiency in a language other than English)	4	SEE 310	3
		L2 Proficiency (proficiency in a language other than English)	3
		Elective	3
	15		**18**

Fourth Year

Fall	Hours	Spring	Hours
GEO 450	4	SEE 402	3
SEE 401	3	HSS 384 or SOC 384	3
Elective	3	Elective	3
Elective	3	Elective	3
	13		**12**

Total credit hours: 116

Bachelor of Arts, Urban Sustainability Concentration

First Year

Fall	Hours	Spring	Hours
ASI 150	1	HST 103	3
CMM 100	3	MTH 207	3
ENG 100	3	PHL 103	3
SCI 190	3	ECO 203	3
REL 103	3	SEE 280	3
SEE 250	3		
	16		**15**

Second Year

Fall	Hours	Spring	Hours
ENG 200	3	SCI 230 & 230L	4
SCI 210 & 210L	4	SEE 340	3
Social Science Elective	3	SEE 310	3
SEE 322	3	L2 Proficiency (proficiency in language other than English)	4
SEE 325	3	SSC 200	3
	16		**17**

Third Year

Fall	Hours	Spring	Hours
L2 Proficiency (proficiency in language other than English)	4	ECO 435	3
ASI 320		SEE 301	3
Social Science Elective		ENG 370	3
Elective		GEO 450	4
		L2 Proficiency (proficiency in language other than English)	4
	4		**17**

Fourth Year

Fall	Hours	Spring	Hours
SEE 303	3	SEE 402	3
Elective		Advanced Philosophy or Religious Studies	3
SEE 401	3	Elective	3
CAP Faith Traditions		Elective	3
		Elective	3
	6		**15**

Total credit hours: 106

Bachelor of Science, Energy Concentration

First Year

Fall	Hours	Spring	Hours
ASI 150	1	HST 103	3
ENG 100	3	PHL 103	3
GEO 208 & 208L	4	SEE 280	3
MTH 168	4	MTH 169	4
SEE 250	3	REL 103	3
	15		**16**

Second Year

Fall	Hours	Spring	Hours
ENG 200	3	ECO 203	3
MTH 218	4	CMM 100	3
PHY 206	3	MTH 367	3
SSC 200	3	PHY 207	3
SEE 325	3	CAP Faith Traditions	3
	16		**15**

Third Year

Fall	Hours	Spring	Hours
SEE 303	3	GEO 450	4
Social Science Elective	3	MEE 472	3
EGR 202	3	SEE 301	3
SEE 322	3	SEE 340	3
ASI 320		EGR 374	3
	12		**16**

Fourth Year

Fall	Hours	Spring	Hours
ECO 435	3	SEE 402	3
MEE 473	3	ENG 370	3
SEE 435	3	Elective	3
SEE 401	3	Elective	3
Advanced Philosophy or Religious Studie	3		
Elective	3		
	18		**12**

Total credit hours: 120

Bachelor of Science, Sustainable Watersheds Concentration

First Year

Fall	Hours	Spring	Hours
ASI 150	1	BIO 152 & 152L	4
BIO 151 & 151L	4	HST 103	3
ENG 100	3	MTH 207	3
SEE 250	3	PHL 103	3
MTH 148	3	SEE 280	3
REL 103	3		
	17		**16**

Second Year

Fall	Hours	Spring	Hours
ECO 203	3	CHM 123	3
ENG 200	3	GEO 116 & 116L	4
GEO 115 & 115L	4	CMM 100	3
SSC 200	3	MTH 207	3
SEE 325	3	SEE 301	3
	16		**16**

Third Year

Fall	Hours	Spring	Hours
ENG 370	3	BIO 310 & 310L	4
SEE 303	3	BIO 409	3
SEE 322	3	GEO 309 & 309L	0
GEO 450	4	CAP Advanced History	3
		SEE 340	3
	13		**13**

Fourth Year

Fall	Hours	Spring	Hours
SEE 435	3	SEE 402	3
SEE 401	3	Elective	3
BIO 452	3	ENG 370	3
Advanced Philosophy or Religious Studies	3	GEO 308	3
Elective	3	Elective	3
	15		**15**

Total credit hours: 121

Courses

SEE 250. Introduction to Sustainability, Energy & the Environment. 3 Hours
Multidisciplinary introduction to sustainability, energy, and environment intersecting the arts, natural sciences, public policy, ethics, environmental justice, spirituality, and economic systems. Students will learn about complex issues from different disciplinary points of view, be introduced to current literature on sustainability, and learn how ethical, scientific and sociopolitical perspectives work together in the investigation of sustainability issues.

SEE 280. Sustainable Communities. 3 Hours
Introduction to fundamental concepts in Sustainability with a focus on the built environment, locality, and community. Includes investigation of how the relationship of social and environmental justice is intrinsic to the study of sustainable communities. Key concepts include social constructions of privilege and social inequality, as well as the characteristics of resilient and adaptive communities.

SEE 301. Earth Systems & Global Climate Change. 3 Hours
This course examines global climate change through the interactions of different components of the Earth system. It explores how changes in the atmosphere, hydrosphere, cryoshere, biosphere and lithosphere interact to impact the Earth's climate, and how human activities contribute to such changes, resulting in the present global warming.

SEE 303. Constructions of Place. 3 Hours
Multidisciplinary, art and design-based course that explores the complex connections between our sense of place, space, and the environmental conditions that influence landscapes and communities on local and global levels. We use the history and practice of Eco-Art and comparisons of built and natural environments as a starting point to explore topics including art history, studio arts, photography, design and socially-engaged art through both scholarly and experiential, project-based learning.

SEE 310. Sustainability Scenarios. 3 Hours
Introduction to the structure, development, communication, and limitations of scenarios used for visioning trajectories and outcomes for human and environmental systems. The course more deeply examines the structure of scenarios as frameworks and stories for engaging critically with a multiplicity of possible outcomes. In analyzing and developing scenarios that address environmental risks and sustainable practices, students learn what a scenario is, how a scenario is created, and in what ways a scenario can be applied, compared and evaluated. Prerequisite(s): SEE 250 or SEE 280.

SEE 322. Cities and Suburbs: Urban Sustainability. 3 Hours
Exploration of urban sustainability that equips students with knowledge of the vital role cities can play in stewardship of the planet, while creating vibrant and inclusive opportunities for their inhabitants. Economic, social, and environmental forces that shape urban environments and the strategies needed to make cities and suburbs sustainable (economically vibrant, socially just, and environmentally sustainable) will be the focus. Prerequisite(s): SEE 250 or SSC 200 or by the approval of program director.

SEE 323. Cities and Energy. 3 Hours
Historical examination of the influence of energy on the urban environment especially since the Industrial Revolution, and how this relationship has affected every aspect of city life. Emphasis on the relationship between the development and design of cities and their impact on various forms of difference (e.g., race, class, and gender, among others). Prerequisites: HST 103 or HST 1HC or ASI 110.

SEE 325. Sustainable Development Goals. 3 Hours
Analysis of the Sustainable Development Goals as a framework for approaching complex, international challenges of sustainable development, environmental sustainability, climate change mitigation and adaptation, and human rights. Background to the goals, metrics for evaluating progress toward the goals, and interactions between various goals will be evaluated through readings and discussion. Prerequisite(s): SEE 250 or SEE 280 or HRS 200 or Permission of instructor.

SEE 340. Food, Energy and Water Nexus. 3 Hours
Analysis of the complex interactions between three fundamentally important systems in discussions of sustainability. Examination of past history, present status and future scenarios for the food, energy and water (FEW) nexus. Prerequisites: SEE 250.

SEE 390. Special Topics in Sustainability, Energy and the Environment. 1-3 Hours
Examination of a specific problem or topic relating to sustainability, energy and the environment at the regional, national, or global scale including particular topics relating to global sustainability policy and sustainable development goals, human rights and climate change and access to modern energy systems. Students will analyze the topic from multiple perspectives possibly including artistic, technical, scientific, social, economic, ethical, and faith-based. Students will apply interdisciplinary knowledge to characterize systems, resources, and stakeholders relevant to the particular problem or topic and discuss solutions to establish more resilient and sustainable systems. Prerequisite(s): SEE 250.

SEE 398L. Experiential Learning Laboratory. 1-3 Hours
Students participate and contribute in experiential learning projects connected to the SEE 'verticals' (e.g., projects linked to UD external communities with long-term SEE commitment). In the experiences, students team with faculty mentors to address real needs in the targeted communities; analyzing and developing solutions from integrative perspectives; communicating results; identifying future projects for achieving desired impact or growing impact. Students are required to develop and maintain a portfolio to archive collective learning and results; document individual learning; and to document reflection about the impact of the experience on their vocation. Prerequisites: SEE 250.

SEE 401. Sustainability Research I. 3 Hours
Interdisciplinary exploration of the issues of sustainability. The scientific, moral, spiritual, social, political, historical, ethical and economic dimensions of sustainability will be explored. Exploration of the foundations of ethical theory and their application to environmental issues. Students will pursue a research project with the primary focus on sustainability on campus. Prerequisites: SEE 250 and PHL 103 or ASI 112 or ASI 120; completion of General Education Natural Science or CAP Natural Science Requirements: junior or senior standing.

SEE 402. Sustainability Research II. 3 Hours
Interdisciplinary exploration of the issues of sustainability as they affect the Dayton community. Course will also explore political philosophy and the ethical foundations of public policy. Students will choose an in-depth community-based research project. CAPSTONE COURSE for the BS in Sustainability, Energy and Environment, or BA in Sustainability Studies. Prerequisites: (PHL 103 or PHL 1HC or ASI 120) and SEE 250 and Junior or Senior standing.

SEE 435. System Modeling for Sustainability. 3 Hours
Interdisciplinary approach to modeling as a tool for analyzing complex systems. Students learn to translate qualitative descriptions for environmental, socioeconomic and energy systems into quantitative output. The course focuses on defining problems and system boundaries and variables, documenting requirements, then proceeding with systems design synthesis and system validation while considering environmental, socioeconomic, and resource impacts. Students learn to examine model outputs to judge validity and to document their procedures. The course will use both standard spreadsheets for simple models as well as open-source system dynamics modeling software. Prerequisites: SEE 250 and MTH 148 or MTH 168 and MTH 207 or MTH 367 or DSC 210 or PSY 216.

SEE 477. Sustainability, Energy & Environment Honors Thesis Project. 3 Hours
First of two courses leading to the selection, design, investigation, and completion of an independent, original Honors Thesis project under the guidance of a faculty research advisor. Restricted to students in the University Honors Program with permission of the program director and department chairperson. Students pursuing an interdisciplinary thesis topic may register for three semester hours each in two separate disciplines in consultation with department chairpersons. Prerequisite(s): Approval of University Honors Program.

SEE 478. Sustainability, Energy & Environment Honors Thesis Project. 3 Hours
Second of two courses leading to the selection, design, investigation, and completion of an independent, original Honors Thesis project under the guidance of a faculty research advisor. Restricted to students in the University Honors Program with permission of the program director and department chairperson. Students pursuing an interdisciplinary thesis topic may register for three semester hours each in two separate disciplines in consultation with department chairpersons. Prerequisite(s): Approved 477; approval of University Honors Program.

SEE 490. Experiential Study in Sustainability, Energy and the Environment. 1-3 Hours
Experiential study of a topic in Sustainability, Energy and the Environment. Students will study a topic of their choosing in consultation with instructor or faculty advisor. Topics will be problem-driven and focused on developing sustainable solutions at the local, national, or global scale. Prerequisite(s): SEE 250.