

SUSTAINABILITY KNOWLEDGE FUNDAMENTALS (6 CREDITS REQUIRED)

This set of courses allows students to acquire fundamental knowledge in sustainability principles. Courses that fulfill this requirement focus on foundational theory and background within a specific topic, providing context and in-depth analysis of that topic. Included are courses that cover principles of sustainability, ethics, behavior, education, biodiversity conservation, policy, law, or other sustainability- themed courses that investigate a particular topical area through case studies

- ANTHRCUL 539: Consumption and Materiality (3 credits)
- ANTHRCUL 625: Anthropological Approaches to Property and Property Rights (3 credits)
- POLSCI 688: Special Topics in Political Science: The Political Economy of Climate Change (3 credits)
- EEB 498: Ecology of Agroecosystems (3 credits)
- EAS 475: Environmental Law (3 credits)
- EHS 574/CHEM 574: Environmental Chemistry (3 credits)
- EPID 666: Health and Socioeconomic Development (3 credits)
- EAS 537: Urban Sustainability (3 credits)
- EAS 528: Foundations of Sustainable Food Systems (3 credits)
- EAS 582: Program Evaluation for Environment and Sustainability (3 credits)
- EAS 577: Political Ecology (3 credits)
- EAS 509: Ecology: Concepts and Applications (4 credits)
- EAS 510: The Science and Practice of Social Change (3 credits)
- EAS 536/BL 536: Ethics of Corporate Management (2.25 credits)
- EAS 517: Conservation Biology (4 credits)
- EAS 555: Climate and Development: Impacts, Mitigation and Adaptation in Less Developed Countries (3 credits)
- EAS 551: Climate Change Science and Solutions
- EAS 557/CEE 586: Industrial Ecology (3 credits)
- EAS 560/URP 543/SW 710 (3 credits)
- EAS 564: Localization: Transitional Thinking for the New Normal (3 credits)
- EAS 565: Principles of Transition: Power over, Power with (2 credits)
- EAS 574/RCNSCI 419/ESENG 532: Sustainable Energy Systems (3 credits)
- EAS 593: Environmental Justice (3 credits)
- EAS 592/URP 542: Environmental Planning (3 credits)
- URP 553: Sustainable Urbanism and Architecture (3 credits)

SKILL SET DEVELOPMENT (SIX CREDITS REQUIRED)

This set of courses allows students to acquire specific tools and methods that can be applied to the practice of sustainability. Courses fulfilling this requirement focus on developing techniques and tools of analysis, intervention, or design principles, and generally have associated problem sets, laboratory or field- based components, design projects, mock

negotiations, or other experiences directly related to skill development. Included are courses related to modeling, mapping, design, policy-making, behavior change, analytical problem solving, and otherwise acquiring experience applying different tools or techniques. Choose 6 credits from the following:

- ARCH 575: Building Ecology (3 credits)
- CEE 480: Design of Environmental Engineering Systems (3 credits)
- CEE 582: Environmental Microbiology (3 credits)
- COMPLXSYS 501: History and Philosophy of Complex Systems (3 credits)
- CEE 520: Physical Processes of Land-Surface Hydrology (3 credits)
- ECON 662: Environmental Economics (3 credits)
- EHS 570: Water Quality Management (3 credits)
- EHS 672: Healthy and Sustainable Foods and Products: Life Cycle Assessment (3 credits)
- ENGR 521: Clean Tech Entrepreneurship (1.5 credits)
- FIN 583: Energy Project Finance (1.5 credits)
- FIN 637: Finance and the Sustainable Enterprise (2.25 credits)
- MECHENG 589: Sustainable Design of Technology Systems (3 credits)
- EAS 447: Forest Ecology and Management (4 credits)
- EAS 549: Analysis and Modeling of Environmental Data (4 credits)
- EAS 580: Sustainable Transportation
- EAS 582: Program Evaluation for Sustainability and Development (3 credits)
- EAS 545: Applied Ecosystem Modeling (2 credits)
- EAS 610: Advanced LCA Methods & Tools (1.5 credits)
- EAS 512/MO 564: Strategies for Sustainable Development I: Enterprise Integration (1.5 credits)
- EAS 513/MO 565: Strategies for Sustainable Development II: Market Transformation (1.5 credits)
- EAS 572/EHS 572: Environmental Impact Assessment (2 credits)
- EAS 523: Ecological Risk Assessment (2 credits)
- EAS 527/BE 527: Energy Markets and Energy Politics (3 credits)
- EAS 531: Principles of GIS (4 credits)
- EAS 533: Negotiating Skills in Environmental Dispute Resolution (3 credits)
- EAS 540: GIS and Natural Resource Applications (2 credits)
- EAS 541: Remote Sensing of Environment (4 credits)
- EAS 543: Environmental Spatial Data Analysis (3 credits)
- EAS 561: The Psychology of Environmental Stewardship (3 credits)
- EAS 562: Environmental Policy, Politics, and Organizations (3 credits)
- EAS 563: Environmental Governance: from Local to Global (3 credits)
- EAS 570: Environmental Economics: Quantitative Methods and Tools (3 credits)
- EAS 581: Advanced Education for Environment and Sustainability (2-3 credits)
- EAS 592/URP 542: Environmental Planning (3 credits)
- EAS 597: Environmental Systems Analysis (3 credits)
- EAS 639.108: Conservation Biology and Ecosystem Health (1 credit)

- EAS 687: Modeling for Landscape Planning (4 credits)
- EHS 570: Water Quality Management (3 credits)
- EHS 633: Evaluating Nutrition Programs (3 credits)
- URP 540: Land Use Planning and Development Management (3 credits)
- URP 528: Food Systems Planning (3 credits)
- URP 532: Sustainable Development (3 credits)
- URP 553: Sustainable Urbanism and Architecture (3 credits)

EXAMPLE CURRICULA FOR FOCUS AREAS

Students are free to design their own focus area, with approval from the certificate coordinator or committee member designated by the coordinator. To provide some structure, this pre-approved list of focus-area coursework is provided; however, students are not required to choose from the listed areas.

Similar to the course lists, the pre-approved focus areas will undergo an annual review by the certificate committee. It is expected that the pre-approved focus areas will change over time.

Example pre-approved focus areas include:

1. SUSTAINABLE FOOD SYSTEMS

A. Sustainability knowledge fundamentals (6 credits required) - *Foundations of Sustainable Food Systems* is required, plus one additional course from an approved list.

- ENVIRON 462.005/EAS 528/URP427/URP 527 (3 credits) | Foundations of Sustainable Food Systems (Required)

And one of the following:

- AAS 558.002/AMCULT 601.001 (3 credits) | Black World Seminar: The Biopolitics of Food
- EEB 498 (3 credits) Ecology of Agroecosystems
- EAS 533 (3 credits) | Diverse Farming Systems: Theory & Practice
- EAS 501-009 (3 credits) | Black Food Sovereignty
- EAS 501-006 (3 credits) | International Agrifood Systems
- EAS 593.001 (3 credits) | Environmental Justice
- ENVIRON 444, EAS 444 | Food Literacy for All (and optional 1 credit discussion seminar)
- ENVIRON 462-008 (3 credits) | Local Food Policy
- NUTR 651-001/MOVESCI 643-001 (3 credits) | Physical Activity and Nutrition
- NUTR 510-001 (3 credits) | Nutrition in the Life Cycle
- NUTR 630 (3 credits) | Principles of Nutrition Science
- NUTR 593 (3 credits) | Food Security, Policy, and Programs
- NUTR 525 (3 credits) | US Food Policy
- NUTR 635 (3 credits) | Food Service and Culinary Science

B. Skill set development (6 credits required) - courses building applied skills, such as food systems planning, nutrition program evaluation, or agroecosystem management.

- NUTR 633 (3 credits) | Evaluation of Nutrition Programs
- NUTR 621 (3 credits) | Eating Disorders Prevention and Treatment
- NUTR 640 (3 credits) | Nutritional Assessment
- URP 524 (3 credits) | Program Evaluation for Urban Planning
- URP 520 (3 credits) | Intro to Geographic Information Systems
- URP 552 (3 credits) | Healthy Cities: Planning and Design
- URP 537 (3 credits) | Climate Adaptation Planning
- EAS 531 (3 credits) | Principles of GIS
- EHS 672 (3 credits) | Healthy and Sustainable Foods and Products - Life Cycle Assessment

C. Experiential learning capstone experience (3-credit) equivalent) - an approved elective course, or a non-course experience like a fellowship or internship, certified by an advisor:

Capstone examples: Past capstones have included the Dow Sustainability Fellows Program, Planet Blue campaigns, the UM Campus Farm, and internships with organizations like the Washtenaw Food Policy Council and Growing Hope. *(For a partial list of potential community organizations to work with, [click here](#).)*

2. TRANSITIONAL THINKING FOR A SUSTAINABLE SOCIETY

A. Sustainability knowledge fundamentals (6 credits required)

- EAS 564: Localization (3 credits)
- EAS 565: Principles of Transition: Power over, Power with (2 credits)
- EAS 560: Behavior and Environment (3 credits)

B. Skill set development (6 credits required)

- EAS 561: Psychology of Environmental Stewardship (3 credits)
- EAS 581: Advanced Education for Environment and Sustainability (2-3 credits)

C. Experiential learning capstone experience (3 credit equivalent) Internship with any of the following:

- Sustainability Without Borders
- Washtenaw Food Policy Council
- Data-Driven Detroit

3. SUSTAINABLE CITIES

A. Sustainability knowledge fundamentals (6 credits required)

- EAS 592/URP 542: Environmental Planning (3 credits)
- URP 553: Sustainable Urbanism and Architecture (3 credits)

B. Skill set development (6 credits required)

- URP 532: Sustainable Development (3 credits)
- EAS 580: Sustainable Transportation (3 credits)

C. Experiential learning capstone experience (3 credit equivalent) Internship with any of the following in an environmental capacity:

- City of Ann Arbor
- Washtenaw County

4. SUSTAINABILITY POLICY

A. Sustainability knowledge fundamentals (6 credits required)

- EAS 510: The Science and Practice of Social Change (3 credits)
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B. Skill set development (6 credits required)

- EAS 562: Environmental Policy, Politics and Organizations (4 credits)
- EAS 563: International Environmental Policy (3 credits)

C. Experiential learning capstone experience (3

credit equivalent) Internship with:

- National or international environmental NGO focused on policy making

5. SUSTAINABLE ENERGY

A. Sustainability knowledge fundamentals (6 credits required)

- EAS 557/CEE 586: Industrial Ecology (3 credits)
- EAS 551: Climate Change Science and Solutions (3 credits)

B. Skill set development (6 credits required)

- EAS 527/BE 527: Energy Markets and Energy Politics (3 credits)
- EAS 615: Renewable Electricity & the Grid (3 credits)
- EAS 501.023: Computational Modeling

C. Experiential learning capstone experience (3 credit equivalent) Internship with one of the following:

- National or international environmental NGO focused on energy issues; energy-related enterprise
- Local, regional or national agency focused on energy issues

6. SUSTAINABLE MANAGEMENT OF BIOLOGICAL RESOURCES

A. Sustainability knowledge fundamentals (6 credits required)

- EAS 517: Conservation Biology (4 credits)
- TBD

B. Skill set development (6 credits required)

- TBD

Plus one ecosystem or organismal class, such as:

- EAS 447: Forest Ecology and Management (4 credits)

C. Experiential learning capstone experience (3

credit equivalent) Internship with one of the following:

- SEAS Affiliated Research Center
- Local, national or international NGO focused on biodiversity and conservation (e.g., The Nature Conservancy, The Sierra Club, World Wildlife Federation)
- Local, regional, or national agency focused on conservation (e.g., Michigan Department of Natural Resources, U.S. Fish & Wildlife Service)

7. SUSTAINABLE WATER SYSTEMS

A. Sustainability knowledge fundamentals (6 credits required)

- EAS 520: Fluvial Ecosystems (3 credits)
- CEE 520: Physical Processes of Land-Surface Hydrology (3 credits)

B. Skill set development (6 credits required)

- EHS 570: Water Quality Management (3 credits)

C. Experiential learning capstone experience (3

credit equivalent) Internship with one of the following:

- SEAS Affiliated Research Center focused on water-related issues
- (e.g., Cooperative Institute for Limnology & Ecosystems Research – CILER; Michigan Sea Grant, or Great Lakes Environmental Research Lab - GLERL).
- Local, national or international NGO focused on water quality and management
- (e.g., Huron River Watershed Council, Michigan Clean Water Action)
- Local, regional or national agency focused on water quality and management (e.g., Michigan DEQ, U.S. Geological Survey)

8. ECOLOGICAL DESIGN focus area requirements

Knowledge fundamentals (6 cr) – Choose two

EAS 503 Sustainable Sites and Historical Precedent

EAS 537 Urban Sustainability

EAS 593 Environmental Justice

EAS 501-098 Aesthetics and Ecology

EAS 551 Climate Change Science and Solutions

EAS 524 Agroecosystem Management: Nutrient Cycles and Soil Fertility

EAS 529 Indigenous Sustainability & Environmental Justice

EAS 579 The Hydrologic Cycle and Water Resource Management

EAS 561 The Psychology of Environmental Stewardship

Skill set development (6 cr)

and choose 1 of these:

EAS 687. Modeling for Landscape Planning (4)

EAS 531. Principles of GIS (4)

EAS 677.085 Engagement for Impact (2)

EAS 501.085 Advanced Design Visualization & Communication (2)

EAS 620 AR/VR for Sustainability (2)

[AI summaries](#)