## INTRODUCTION

In 2017, the Community Outreach and Engagement Core of the University of Michigan Lifestage Environmental Exposures and Disease (MLEEaD) Center and the University of California, Davis Environmental Health Sciences Core Center, with funding from the National Institute of Environmental Health Sciences, collaborated to develop an environmental justice and health equity curriculum to strengthen the capacity of academic and community partners to work together to promote innovative and impactful environmental health research. The team identified 10 content areas within 5 categories that would comprise an effective curriculum, and then identified existing training material in each content area; these are documented in the matrix below.

## Review of Existing Curricula - Table 1

Curriculum	n Environmental & Research Social Justice		ſ	Partnership Development			Capacity Building	Policy A	dvocacy	
	EJ 101	Racism & White Supremacy	Research 101	Research as a Decision- making tool	Partnership Development 101	Creating equitable spaces for engagement	Disrupting the power of language	Strengthening the capacity to create change	Strategies for Advocacy	Translating Research into Policy
Community Environmental Health Science Academy (Adult)										
Making Youth Data Matter (MYDM) Curriculum (all modules) (High School)										
M1: Map Matters										
M2: Introduction to Putting Youth on the Map (PYOM)										
M3: Digging into Putting Youth on the Map										
M4: Putting Youth on the Map for Change										
Detroit URC: Partnership Academy (Adult)										
Our Place in the Web of Life: An Intro to EJ (UU Ministries) (Adult)										

Curriculum	Environme	ntal &	Research	1	Partnersh	ip Developn	nent	Capacity	Policy A	dvocacy
	Social Justi	ce						Building		
	EJ 101	Racism & White Supremacy	Research 101	Research as a Decision- making tool	Partnership Development 101	Creating equitable spaces for engagement	Disrupting the power of language	Strengthening the capacity to create change	Strategies for Advocacy	Translating Research into Policy
Environmental Racism: Margaret										
Anderson (U-Delaware)										
(High School/Undergrad)										
Environmental Justice										
& Social Action										
Leslie Petruzzi; High School of the										
Future (High School)										
Earth Force: Community Action &										
Problem-Solving Process										
(High School)										
Teaching Tolerance (SPLC):										
EJ Middle Grades										
(Middle School)										
Teaching Tolerance (SPLC)										
Introducing Kids to the Idea of										
Enviro Racism										
(K-5 <sup>th</sup> Grade)										
Teaching Tolerance (SPLC):										
Environmental Justice										
(Grades 3-12)										

Curriculum	Environme	ental &	Research	1	Partnersh	Partnership Development			Policy Advocacy	
	Social Justi	ce						Building		
	EJ 101	Racism & White Supremacy	Research 101	Research as a Decision- making tool	Partnership Development 101	Creating equitable spaces for engagement	Disrupting the power of language	Strengthening the capacity to create change	Strategies for Advocacy	Translating Research into Policy
Just Health Action										
No One's Backyard: EJ Curriculum										
Lesson Plan List Facilitating										
Health Equity Conversations										
(Poster) Powerpoint										
(Adult)										
Lesson Plan 1:										
What Makes a Community										
Healthy?										
Lesson Plan 2										
Whose backyard? Toxic Waste										
Management Meeting and Enviro										
Injustice										
Lesson Plan 3:										
How are Equality and Equity										
Different?										
Lesson Plan 4:										
Causes of the Cause: What are										
the Root Causes of this Problem?;										
Diagramming Methodology										
Lesson Plan 5:										
Environmental Justice Matters:										
Mapping Environmental Justice										
Impacts; tables										

Curriculum	Environmental & Social Justice		Research	1	Partnership Development		Capacity	Policy Advocacy		
								Building		
	EJ 101	Racism & White Supremacy	Research 101	Research as a Decision- making tool	Partnership Development 101	Creating equitable spaces for engagement	Disrupting the power of language	Strengthening the capacity to create change	Strategies for Advocacy	Translating Research into Policy
Lesson Plan 6:										
Environmental Justice Matters:										
Mapping Cumulative Impacts										
Lesson Plan 7:										
Incorporating EJ When Reducing										
Pollution in Stormwater										
Lesson Plan 8:										
Equity Impact Review: Green										
Stormwater Infrastructure in										
Seattle										
Just Health Action:										
Solutions to the Cause: Taking										
Action on Upstream Causes										
Just Health Action:										
Advocacy Continuum										
Just Health Action:										
Gotcha! How to prepare a health										
equity elevator speech										
Just Health Action:										
How Racism is Embodied			1							
curriculum: Ism/health empathy										
poem										

Curriculum	Environmental & F Social Justice		Research Pa		Partnership Development		Capacity	Policy A	dvocacy	
								Building		
	EJ 101	Racism &	Research	Research as a	Partnership	Creating	Disrupting	Strengthening	Strategies	Translating
	EJ 101	White	101	Decision-	Development	equitable	the power	the capacity to	for	Research
		Supremacy		making tool	101	spaces for engagement	of language	create change	Advocacy	into Policy
AMBIENT Teacher:										
Environmental Ethics										
(High School/Undergrad)										
Unnatural Causes: Is inequality										
making us sick?										
(facilitation questions)										
(adult)										
The House We Live In										
(classroom guide) (adult)										

## Selected Curricula Details: Table 2

Curriculum	Focus / Goals / Objectives	Format	Additional Themes (beyond those above)
Community Environmental	Minimize the divide between academic knowledge and applications to respond to	4 day training	Regulatory / Scientific Language
Health Science Academy (UC Davis)	pressing social & environmental issues	Interactive web forum	Research Ethics
	Building capacity of EJ communities in California in methods of environmental	Cluster-based activity	Politics of Knowledge
	monitoring and data analysis to inform work in the area of environmental	Case Study	Cumulative Impacts
	advocacy	Field Work/Sample Collection	
		Assignments/homework	
		Also – one day event including short seminars/workshops focused on	
		specific topics related to projects	
Community Environm	ental Health Science Academy (UC Davis)	I	
Making Youth Data Matter (UC Davis)	Support young researchers' access to and use of data and analyses that may	4 Curriculum Modules	Youth Participatory Action Research (YPAR)
	complement their social change efforts – potentially as context, as additive	M1: Map Matters	Access and use of data to complement social change efforts
	information, and/or as a focus of critique and further development	M2: Introduction to Putting Youth on the Map (PYOM)	Spatial Analysis
		M3: Digging into Putting Youth on the	
		Мар	

Curriculum	Focus / Goals / Objectives	Format	Additional Themes (beyond those above)
		M4: Putting Youth on the Map for	
		Change	
Making Youth Data	Provide opportunities to consider why we	180 mins	Maps
Matter	should care about data/maps	Ice Breaker	
M1: Map Matters	Activity 1.1: Data and Mapping Breakdown		
	Youth participant share feeling on	Community Mapping	
	data/mapping; how they use maps in their	Presenting Maps	
	lives; whether/how they use maps/data in		
	community change work; and where data/map come from	Scenarios & Maps	
		Role Playing	
	Activity 1.2: Mapping Matters	PowerPoint Presentation	
	Youth participants explore how maps have		
	been used to oppress and resist through a	Local Mapping	
	skit-based activity focused on the impacts of redlining and (un)incorporation.	Initiative/Representative	
	Activity 1.3: Mapping in our Community		
	This activity involves bringing in local		
	speakers on locally relevant efforts to		
	share how maps are being used to create positive community change.		
Making Youth Data Matter	Provides an overview of PYOM resources and how to navigate online tool	125 mins	Accessing Spatial Data
			<u> </u>

Curriculum	Focus / Goals / Objectives	Format	Additional Themes (beyond those above)
		Vocabulary cards	
	Activity 2.1: Map Chat		
M2: Introduction to		Map chat sculptures	
Putting Youth on the	Introduces key terms through creating		
Map (PYOM)	group body sculptures to begin preparing	Prezi	
	youth to use, produce, and present data		
	maps	Live mapping demonstration	
	Activity 2.2 PYOM Overview	Creating Maps	
	Review Prezi on quick overview	Games (scavenger hunt)	
	Activity 2.3: How to Create Maps		
	Students engage in data scavenger hunt		
Making Youth Data	Provides a deeper understanding of	240 mins	Youth Well-Being Index
Matter	analysis and maps available and builds		
	capacity to critically use data	Body Mapping	"Interconnected" issues that face youth
M3: Digging Into			
PYOM	Activity 3.1: Vocabulary Relay Race	Games (vocab relay race; jeopardy;	Limitations of Data (trustworthiness of source,
	Teams of youth race to link up terms to definitions	data-ing game)	representativeness, accuracy, visual display)
	Activity 3.2: Body Mapping		
	PYOM tool-the youth Well-Being Index		
	(YMI) a holistic approach to support youth		
	well-being. Participants dray a map of the		
	body, label body parts w/ related YWI		
	domains, list out barriers they've		
	experienced and ID how domains are		
	interconnected		

Curriculum	Focus / Goals / Objectives	Format	Additional Themes (beyond those above)
	Activity 3.3: PYOM Jeopardy		
	Participants team up to play Indices		
	Jeopardy		
	Activity 3.4: Youth Vote Breakdown		
	Youth learn about California Civic		
	Engagement Project Youth Voting Data		
	and how to use as part of their advocacy		
	and action strategy		
	Activity 3.5: Beyond Indices		
	Scavenger hunt to explore other types of		
	data maps focused on local issues		
	Activity 3.6: The Data-ing Game		
	Understand the limitations of data and		
	identify the best possible dataset		
Making Youth Data	Provides opportunities to practice PYOM	70 mins	Participatory Action Research (PAR)
Matter	resources in combination with local		
	knowledge to make change.	Demonstration of resource page	
M4: Putting Youth			
on the Map for	Activity 4.1: Getting to Know PYOM	Group exercise	
Change	Resources		
	Learn about PYOM resources to support Participatory Action Research (PAR).	Activity stations	
		Map creation	
	Activity 4.2: Other tools for Community Change		

Curriculum	Focus / Goals / Objectives	Format	Additional Themes (beyond those above)
	Learn about other tools for PAR and		
	Participatory Mapping		
	Activity 4.3 YPAR/Mapping Simulation		
	Complete PAR simulation		
Making Youth Data	Matter (UC Davis) http://interact.regionalcha	nge.ucdavis.edu/youth/resources/curric	
Detroit URC:	Introduction to core principles, concepts,	Lectures	Community-based Participatory Research
Partnership	methods, benefits & challenges involved		(CBPR)
Academy (U-M)	in community-based participatory	Discussions	
	research (CBPR)		Ethical considerations of research
		Case Studies	
	Describing & understanding partnership		
	formation & maintenance; use of mixed	Small Group Exercises	
	methods & basic research; evaluating		
	interventions; and feedback,		
	interpretation, dissemination, and		
	application of research results		
Detroit URC: Partn	ership Academy (U-M) https://www.detroitu	rc.org/expertise-programs/cbpr-capacit	y-building.html
Our Place in the	For UU congregations; Help congregations	5 session class	Identify & explore various dimensions of
Web of Life: An	identify specific environmental injustices		"place" – geographic, biological, social, cultura
Intro to EJ	in their own communities, with a focus on	Uses film, music, research, mapping,	and economic (session 1)
	racism and economic privilege, in order to	ethical reflection, meditation and	
	help congregations develop insight and	ritual	

Curriculum	Focus / Goals / Objectives	Format	Additional Themes (beyond those above)
	strategies to collaborate with communities of color and other marginalized communities to effectively address priority concerns	Suggested donation; \$100 for large congregation, \$50 for small	Identity & different experiences, expectations, and perspectives on justice and environment/nature (session 1)
	5 objectives Deepen understanding of place		Tracing consequences of decisions "upstream" and "downstream" (sessions 2 & 3)
	Explore and bring to a greater awareness your congregation's impact on your local community		Racial, economic, and EJ implications of personal / congregational behavior (session 4)
	Develop a group consciousness and ethic Reinforce your congregational identity Do serious social justice work		Systemic / structural analysis of oppression and discrimination (session 4)
			Accountability & Justice (session 5)
			Action Plan Development (session 5)
Our Place in the Wel	<u>b of Life: An Intro to EJ – https://uuministryfore</u>	earth.org/EJ-Curriculum	
Environmental Racism: Margaret Anderson (U-	Teaches basic communication skills Lets students observe sociological process	1 hour in-class exercise or adapted to fit over several days	Emergence of collective behavior and social movements
<u>Delaware)</u>	through the group dynamics that emerge in exercise	Group activity – several groups, each representing a different set of	The role of government in conflict resolution
	Show students how sociological processes can be observed in community & organizational behavior	interests regarding a hospital waste incinerator and creates a list of objections/support for proposed facility	The relationship between government and business interests

Curriculum	Focus / Goals / Objectives	Format	Additional Themes (beyond those above)
	Identify in "real" interaction how		
	collective behavior and social movements		
	arise from collective grievances		
	n: Margaret Anderson (U-Delaware) –		
http://www.asanet.o	rg/sites/default/files/savvy/introtosociology/	LessonPlans/Lesson%20PlanEnvironmen	talRacism042408.htm
Teaching Tolerance:	Get students to think about their	8 Lesson Plans including	Understand the ways that humans of different
Environmental	relationship with environment, overcome		cultures and backgrounds relate to nature and
Justice & Social	racial injustice, and ultimately be active	"Do Now" – at beginning of class, ask	their environmental surroundings
Action (High School)	members of society working to change the	students to either reflect upon a	
	status quo as is relates to environmental	discussion from previous day or	Identify and reflect on own beliefs and
	issues and race	explain their opinion on a certain	concepts of environmental issues and how they
		topic/question.	play out in the own daily lives
	Read the "Principles of Environmental		
	Justice" and compare/contrast to portions	"Exit Slip" - done at end of class, ask	Analyze case studies including <i>Bean vs.</i>
	of the US Constitution.	students to reflect on discussion or	Southwester Waste Management which was
		review key concepts	the first real lawsuit to focus on environmental
	Analyze the effects of policy issues on		discrimination
	toxic waste and landfills in urban areas	"Compare and Contrast" - students	
		compare and contrast historical texts	Analyze business drivers that perpetuate
	Research the Student Environmental	to current concepts related to EJ.	stratified class systems and the creation of
	Action Committee		environmental injustice in low-income
		"Case Study Analysis" – review	communities
	Defend or Deny the EPA's rulings as they	environmental cases and their	
	regard to communities involving those in	outcomes including a locally relevant	
	urban areas, minority groups, and poverty	case	
	Compare the differences amongst	"Field Trip" - student learn that	
	environmental equity, and environmental	environment & nature important in	
	justice, and	urban environments	
	,		

Curriculum	Focus / Goals / Objectives	Format	Additional Themes (beyond those above)
	environmental racism		
		"Role Play" - students given profiles	
	Determine the economic effects of	of different stakeholders in EJ and	
	environmental issues, and illustrate the	identify how they would react/make	
	rationalization	decisions	
	for environmental differences amongst		
	different economic areas	"Reading Comprehension and	
		Analyzing Key Terms" – student will	
	Explore the terms environmental racism	analyze key terms of LULU through	
	and environmental justice	analysis of Peter S. Wenz's paper	
		"Just Garbage" and also analyze	
		business drivers that perpetuate	
		stratified class systems and the	
		creation of environmental injustice in	
		low-income communities	
		"Jigsaw" - sharing case analysis	
		findings where one group of	
		individuals focuses on one key case	
		or concept and then shares	
		"Mock Summit" – final activity, hold a	
		mock EJ Summit modeled on People	
		of Color Environmental Leadership	
		Summit of 1991 & 2002	
		"Scientific Labs" – work w/ chemistry	
		instructor to create simulations of	
		chemicals permeating land and	

Curriculum	Focus / Goals / Objectives	Format	Additional Themes (beyond those above)	
		chemical reactions that take place in water pollution		
		Multimedia (Videos) – short clips of: "Erin Brokovich" how woman with no legal experience and lower socio- economics could still have voice and make impact "A Civil Action" true story of enviro pollution "Silkwood" highlights occupational exposure		
-	nvironmental Justice & Social Action (High Scl		I	
	e.org/classroom-resources/tolerance-lessons			
Teaching Tolerance: EJ Middle Grades	What is environmental justice?	Group discussion	Causes & effects of pollution	
Project of the	How is pollution related to inequality?	Group activities: <u>The Effects of</u> <u>Pollution: Who and Why (Chart)</u>	EJ Mapping: <u>Air Pollution in Minority Areas</u> ( <u>Map)</u>	
Sothern Poverty Law	How can maps help us see where injustice			
<u>Center</u>	exists?		What would a more environmentally friendly situation look like in your community?	
			Invite a local organization to speak to your class	
Teaching Tolerance: E	Teaching Tolerance: EJ Middle Grades – https://www.tolerance.org/classroom-resources/tolerance-lessons/analyzing-environmental-justice			

Curriculum	Focus / Goals / Objectives	Format	Additional Themes (beyond those above)
Teaching Tolerance:	Students will explore the concept of	Activity (wrapped candy; cards or	Distributive Justice
Introducing Kids to	environmental racism through their own	stickers [two distinct colors]; art	
the Idea of Enviro	experience of fairness.	supplies for making posters)	Advocacy
<u>Racism</u>			
	Students will learn about various	Article: Sunset Park Teens Take to	
	environmental hazards and the fact that	Streets with Pollution Detectors	
	certain communities are affected more		
	than others.	Activity One: Tell all the students	
		with a red card to give their wrappers	
	Students will see that they can be	to a person with a blue card. Explain	
	empowered to change their communities	that the people with blue cards have	
	by learning about young people who took	to live with this garbage even though	
	a stand, and by creating materials	they didn't create it.	
	addressing environmental concerns.		
Teaching Tolerance	Introducing Kids to the Idea of Enviro Rad	<u>cism – https://www.tolerance.org/clas</u>	ssroom-resources/tolerance-
lessons/analyzing-e	nvironmental-racism		
No One's Backyard:		8 Lesson Plans	Social Determinants of Health
EJ Curriculum			
PowerPoint (Just		5 Actions	Racism, Classism, & Sexism
Health Action)			(Dahlgren & Whitehead 1991; Jones et al. 2009)
		Word Wall (definitions of terms)	
		LP1: What makes your community	
		healthy/unhealthy?	

Curriculum	Focus / Goals / Objectives	Format	Additional Themes (beyond those above)
		LP2: Whose backyard? Toxic Waste Meeting	
		LP3: Equality vs. Equity	
		LP4: Root Causes: Causes of the Cause	
		LP5: Mapping Environmental Impacts	
		LP6: Cumulative Impact Analysis	
		LP7&8: Green Infrastucture	
LP1: What makes your community	Learn about indicators to measure health at different levels	40-90 minutes	Social Determinants of Health
healthy/unhealthy?	Identify health and unhealthy locations in	Activity – list what makes something health & how do you measure it? (on	Community health mapping
	your community	individual, school, neighborhood scales)	Listing Actions
	List some ideas on how to improve the unhealthy areas		
LP2: Whose backyard? Toxic	Explore social, political, and economic systems that create inequality based on	30-50 minutes	
Waste Meeting	race & class and how this can lead to	Role Play	
	disparate burdens of pollution in communities	"four-corner toxic waste activity"	
	Introduction to principles and concepts of EJ and community voice and power	participants divided into four communities (four corners of room) with different amounts of income,	

Curriculum	Focus / Goals / Objectives	Format	Additional Themes (beyond those above)
	List three reasons why people may not participate in decision-making	race/ethnicity makeup, and environmental burdens and benefits (based on actual data taken from	
	List three ways to encourage communities to participate in decision-making	Duwanish Valley Cumulative Health Impacts Analysis)	
	List three ways communities can make their voices heard	Toxic Waste Placement Meeting	
LP3: Equality vs.	Participants able to distinguish & explain	20-40 minutes	Equity
Equity	difference between equality & equity and give examples	Discussion	Equality
	Discussion on the benefits of equitable solutions for diverse communities	List examples on notecards/lists	
LP4: Root Causes:	Participants learn to identify & diagram	60 mins	Root Causes
Causes of the Cause	root causes of a problem and see the connection between proximate and ultimate factors	Class/group exercise	Proximate & Ultimate Factors
LP5: Mapping	Using maps and a variety of indicators,	50-75 minutes	Mapping / Spatial Analysis
Environmental Impacts	participants will evaluate whether different parts of Seattle have disproportionate environmental burdens	Mapping/Coloring exercise	
	and benefits in some geographic areas	Discussion	

Curriculum	Focus / Goals / Objectives	Format	Additional Themes (beyond those above)
	relative to others in order to make an EJ		
	determination		
LP6: EJ Matters:	Participants will use a cumulative impacts	50-90 minutes	Cumulative Impacts
Mapping	method to qualify and confirm whether		
Cumulative Impacts	different parts of Seattle have	Mapping/Coloring exercise	
(pt 2)	disproportionate environmental burdens		
	and benefits in some geographic areas	Discussion	
	relative to others		
LP7: Introduction to	Participants will learn about sources of	50-75 minutes	
Stormwater	stormwater pollution, how green		
Pollution and a	stormwater infrastructure (GSI) can be	Video	
Green Stormwater	used to protect both our waters and		
Infrastructure	people, and how government agencies are		
	working with underrepresented		
	communities to install GSI		
LP8: Equity Impact	Using an equity impact review tool,	50 minutes	Equity Impact Review (EIR) tool
Review: Green	participants will consider equity in making		
Stormwater	a decision to install green stormwater	Equity Impact Review (EIR)	
Infrastructure in	infrastructure (GSI) in two Seattle	Worksheet	
Seattle	neighborhoods		
		Mapping/Coloring exercise	
No One's Backyard: E.	   Curriculum PowerPoint (Just Health Action) -	 -http://justhealthaction.org/wp-content	/uploads/2016/03/JHA-green-river-symposium-
EJ-curriculum-final.pd			
Solutions to the	Participant identify possible solutions from	~60 minutes	Strategic Planning
Cause: Taking action	the Causes of the Causes (root cause)		
on upstream causes	diagrams – follow-up activity to LP4	Drawing / discussion	SWOT Analysis

Curriculum	Focus / Goals / Objectives	Format	Additional Themes (beyond those above)	
		Strategic Planning		
		SWOT Analysis		
No One's Backyard: E.	J Curriculum PowerPoint (Just Health Action) -	=		
http://justhealthactio	on.org/wp-content/uploads/2015/04/JHA-Solu	utions-to-the-causes-lesson-plan.pdf		
Just Health Action:	Taking action on societal determinants of	Suggested preparation for facilitators	Social Determinants of Health	
<u>Advocacy</u>	health			
<u>Continuum</u>		Group exercise		
		Discuss questions in relation to		
		Individual, Service (addressing		
		people), Activism (addressing		
		structures)		
		Homework (optional)		
Just Health Action: Ac	dvocacy Continuum – http://justhealthaction.	org/wp-content/uploads/2014/01/JHA-a	dvocacy-continuum-final-rev.pdf	
Just Health Action:	Develop you own health equity elevator	1-2 hours (depending on prior or in-	"Anti-Elevator" Speech	
Gotcha! How to	(or anti-elevator) speech	class homework)		
prepare a health			Population Health	
equity elevator		Recommend writing own speech		
<u>speech</u>		prior to facilitating	Health Equity	
			Social Determinants of Health	
Just Health Action: Gotcha! How to prepare a health equity elevator speech –				
http://justhealthact	http://justhealthaction.org/wp-content/uploads/2012/08/JHA-Health-Equity-elevator-speech-Gotcha.pdf			
Just Health Action:	Reflect on personal example of feeling	45-60 (depending on depth of	Empathy	
How Racism is	isolated or discriminated against and	discussion)		
Embodied			Impacts of Racism on Biology	

Curriculum	Focus / Goals / Objectives	Format	Additional Themes (beyond those above)		
curriculum:	impact on health to elicit empathy about	Group Discussion			
Ism/health empathy	discrimination/racism				
<u>poem</u>		Group Poem Development			
	Discussion on how racism literally effects				
<u>Resources</u>	one biology				
Just Health Action: Ho	Just Health Action: How Racism is Embodied curriculum: Ism/health empathy poem –				
http://justhealthaction	n.org/wp-content/uploads/2010/05/Ism-heal	th-empathy-poem1.pdf			
http://justhealthaction	http://justhealthaction.org/wp-content/uploads/2010/05/Resources-used-for-how-racism-is-embodied-curriculum.pdf				
Earth Force:		Six-Step Model	Root Causes		
Community Action					
& Problem-Solving		YouTube Videos	Address a Policy or Practice related to local		
Process			environmental issue		
Earth Force: Commun	Earth Force: Community Action & Problem-Solving Process – https://earthforce.org/community-action-and-problem-solving-process/				