

2 Year MS & MSE Plan		Requirement*	Notes	Course #	Credits	Term
Engineering	Civil Engineering Core	15CR from the Civil and Environmental Engineering Department	Required: CEE 520 CEE 521 CEE 522	CEE 520		
		Minimum of 2 additional CEE courses in Environmental and Water Resource Engineering	See List A for sample of approved courses (next page)	CEE 521		
Natural Resources and Environment	AS CORE	9-12CR in Aquatic Sciences (courses on next page)	One course each from: 1) Organismal Biology 2) Ecosystem Ecology 3) Ecosystem Modeling	CEE 522		
	NRE Core	NRE 509 NRE 510				
		IAMS Requirement Two courses; 3CR minimum Please reverse for approved courses.				
	Analytics	2 Analytics courses	NRE 538 or approved alternate and one additional Analytics course			
	Opus*	Students are not expected to complete an Opus, but could petition to do a thesis/practicum or project*	At most 6CR of NRE 700/701			
Cognates <i>[Rackham requirement]</i>		Please see next page for cognate requirement information				
TOTALS	MINIMUM CREDIT HOURS BY SCHOOL	"NRE" – Minimum 25CR				
		"CEE" – Minimum 15CR				
	TOTAL CREDIT HOURS	Minimum 54 Credit Hours				

*Any waiver or substitution of degree requirement must be approved by the appropriate faculty and submitted to OAP

A) Civil Engineering

Sample of Environmental and Water Resources courses (more available, see advisor):

CEE 524 (3)	Environmental Turbulence (W)
CEE 527 (3)	Coastal Hydraulics (F)
CEE 580 (3)	Physicochemical Processes in Environmental Engineering (W)
CEE 581 (3)	Aquatic Chemistry (F&W)
CEE 582 (3)	Environmental Microbiology (F)
CEE 586/NRE 557 (3)	Industrial Ecology (W)
CEE 590 (3)	Stream, Lake, and Estuary Analysis
CEE 592 (3)	Biological Processes in Environmental Engineering (W)
CEE 624 (3)	Restoration Fundamentals and Practice in Aquatic Systems (F)

Natural Resources and Environment Aquatic Sciences

1) Organismal Biology

Choose one:

- NRE 409 – Ecology of Fishes OR
- EEB 486 – Biology & Ecology of Fishes (UMBS)
- NRE 422 – Biology of Fishes
- EEB 457 – Algae in Freshwater Systems
- NRE 516 – Aquatic Entomology

2) Ecosystem Ecology

Choose one:

- NRE 476 – Ecosystem Ecology
- EEB 483 – Limnology
- NRE 520 – Fluvial Ecosystems

3) Ecosystem Modeling

Choose one:

- NRE 534 – GIS and Landscape Modeling
- EEB 401 – Interrogating Data with Models

Cognates

SNRE – Minimum 4 credits outside SNRE. Can be fulfilled with CEE coursework.

CEE – 6 credits of non-CEE coursework. Can be fulfilled with one advanced Mathematics course (proper choice of SNRE Analytical courses can also satisfy this requirement) and one SNRE course.

Integrated Analytic Methods and Skills Requirement

Students are required, at some point during their time enrolled in the program, to take 2 courses composing at least 3 credits from a faculty-approved list of courses that focus on integrative analytic methods and skills. The faculty-approved existing courses that satisfy this requirement are listed below:

Fall

- 501 – Social Vulnerability & Adaptation to Environ Change
- 578 – Urban Stormwater
- 552 – Ecosystem Services
- 514 – Environmental Impact Assessment
- 533 – Negotiation Skills
- 536 – Mediation Skills
- 548 – Land Use and Global Change
- 570 – Environmental Economics
- 597 – Environmental Systems Analysis
- 564 – Localization Seminar
- 677 – Climate Adaptation Seminar (2nd 7 week)
- 687 – Landscape Planning

Winter

- 501 – Network Analysis for Nat Res & Environ Planning (Winter A)
- 501 – Science and Management of the Great Lakes
- 501 – Decision Making for Sustainability
- 545 – Applied Ecosystem Modeling (W14 – 2nd 7 weeks)
- 550 – Systems Thinking for Sustainable Development
- 557 – Industrial Ecology
- 581 – Advanced Environmental Education
- 589 – Ecological Restoration
- 610 – Advanced LCA Methods and Software Tools (W14 – 2nd 7 weeks)
- 641 – Interdisciplinary Research Methods
- 787 – Metro Studio (MLA only)