Fall 2019
Feb 11, 2020

Schedule of Classes

Click on CRN to view prereq, restrictions and other course details.
This page prints best using Internet Explorer with orientation set to Landscape.

Business

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
83482	BUS	1100	0C	1OL	3.000	Introduction to Business		TBA	Leinonen	09/03-12/13	TBA	On Line Technology Fee $114.00			

Chemistry

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
84718	CH	3505	0A	1OL	1.000	Math for Physical Chemistry I		TBA	Valenzano-Slough	09/03-10/18	TBA	On Line Technology Fee $38.00			

Civil & Environmental Engrg

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
84913	CEE	5212	R02	1OL	3.000	Prestressed Concrete Design		TBA	Ahlborn	09/03-12/13	TBA	On Line Technology Fee $114.00			

Education

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
84863	ED	5101	R01	1OL	1.000	Foundations of Online Teaching		TBA	Freeman	09/03-10/18	TBA	On Line Technology Fee $38.00			
84865	ED	5101	R02	1OL	1.000	Foundations of Online Teaching		TBA	Freeman	10/21-12/13	TBA	On Line Technology Fee $38.00			
81330	ED	5740	R01	1OL	2.000	Designing Education Research		TBA	Stockero	09/03-12/13	TBA	On Line Technology Fee $76.00			

Electrical & Computer Engrg

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
82005	EE	3010	0C	1OL	3.000	Circuits and Instrumentation		TBA	Davis , Pakkala	09/03-12/13	TBA				
82006	EE	3010	L15	1OL	0.000	Circuits and Instrumentation		TBA	Sarabi , Middlebrook	09/03-12/13	TBA	Lab/Course Fee: $150.00 and On Line Technology Fee $114.00			

82290	EE	4221	0B	1OL	3.000	Power System Analysis 1	TBA	Lukowski	09/03-12/13	TBA	On Line Technology Fee $114.00
82292	EE	4227	0B	1OL	3.000	Power Electronics	TBA	Hassell	09/03-12/13	TBA	On Line Technology Fee $114.00
84576	EE	4252	0B	1OL	3.000	Digital SP and Applications	TBA	Fuhrmann	09/03-12/13	TBA	Lab/Course Fee: EE4259 $173.50 and On Line Technology Fee $114.00
82302	EE	5200	0B	1OL	3.000	Advanced Methods in Power Sys	TBA	Mork	09/03-12/13	TBA	On Line Technology Fee $114.00
83956	EE	5221	0B	1OL	3.000	Advanced Electric Machines	TBA	Hassell	09/03-12/13	TBA	On Line Technology Fee $114.00
84575	EE	5300	0B	1OL	3.000	Math and Comp Methods in Eng	TBA	Schulz	09/03-12/13	TBA	On Line Technology Fee $114.00
83957	EE	5455	R01	1OL	3.000	Cybersecurity Indust Ctrl Sys	TBA	Goldsmith	09/03-12/13	TBA	On Line Technology Fee $114.00
84146	EE	5520	0B	1OL	3.000	Fourier Optics	TBA	Middlebrook	09/03-12/13	TBA	On Line Technology Fee $114.00
84499	EE	5811	R02	1OL	3.000	Automotive Systems	TBA	Naber	09/03-12/13	TBA	On Line Technology Fee $114.00
85041	EE	5900	01	1OL	3.000	Adv Power System Protection	TBA	Mork	09/03-12/13	TBA	On Line Technology Fee $114.00
84929	EE	6210	0B	1OL	3.000	Power Sys Dynamics & Stability	TBA	Ten	09/03-12/13	TBA	On Line Technology Fee $114.00

Engineering Fundamentals

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
82183	ENG	5510	0B	1OL	3.000	Sustainable Futures I		TBA				Shonnard	09/03-12/13	TBA	Lab/Course Fee: $75.00 and On Line Technology Fee $114.00

Enterprise

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
83257	ENT	3964	R01	1OL	1.000	Project Management		TBA				Woods	09/03-12/13	TBA	On Line Technology Fee $38.00

Humanities

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
83553	HU	3015	R01	1OL	3.000	Advanced Composition		TBA				Bergstrom	09/03-12/13	TBA	On Line Technology Fee $114.00

Marketing

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee

82546	MKT	4500	R01	1OL	3.000	Intro to Digital Marketing		TBA	McColley	09/03-12/13	TBA	On Line Technology Fee $114.00	

Materials Sci. & Engineering

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
84222	MSE	4320	0B	1OL	3.000	Corrosion/Environmental Effect		TBA	Hackney	09/03-12/13	TBA	On Line Technology Fee $114.00			
84908	MSE	4777	0B	1OL	3.000	Open-Source 3-D Printing		TBA	Pearce	09/03-12/13	TBA	On Line Technology Fee $114.00 and Lab/Course Fee: $500.00			
84255	MSE	5110	0B	1OL	3.000	Thermodynamics and Kinetics I		TBA	Swenson	09/03-12/13	TBA	On Line Technology Fee $114.00			
84533	MSE	5140	0B	1OL	3.000	Mechanical Behavior of Matls		TBA	Jin	09/03-12/13	TBA	On Line Technology Fee $114.00			
84259	MSE	5760	0B	1OL	3.000	Vehicle Batt Cells and Systems		TBA	Hackney	09/03-12/13	TBA	On Line Technology Fee $114.00			
84547	MSE	6990	22	1OL	2.000	PhD Thesis Research		TBA	Sanders	09/03-12/13	TBA	On Line Technology Fee $76.00			

Mathematical Sciences

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
82331	MA	2320	R02	1OL	2.000	Elementary Linear Algebra		TBA	Gregersen	09/03-12/13	TBA	On Line Technology Fee $76.00			
82157	MA	3520	R02	1OL	2.000	Elem Differential Equations		TBA	Kulasekera Mudiyanselage	09/03-12/13	TBA	On Line Technology Fee $76.00			
82158	MA	3710	R05	1OL	3.000	Engineering Statistics		TBA	Kendall	09/03-12/13	TBA	On Line Technology Fee $114.00			
84654	MA	4700	R01	1OL	3.000	Prob and Stat Inf I		TBA	Kendall	09/03-10/18	TBA	On Line Technology Fee $114.00			
84987	MA	4700	R02	1OL	3.000	Prob and Stat Inf I		TBA	Kendall	09/03-10/18	TBA	On Line Technology Fee $114.00			
84656	MA	5701	R02	1OL	3.000	Statistical Methods		TBA	Molzon	10/21-12/13	TBA	On Line Technology Fee $114.00			
84989	MA	5701	R03	1OL	3.000	Statistical Methods		TBA	Molzon	10/21-12/13	TBA	On Line Technology Fee $114.00			
84657	MA	5761	R02	1OL	3.000	Computational Statistics		TBA	Sha	10/21-12/13	TBA	On Line Technology Fee $114.00			
84990	MA	5761	R03	1OL	3.000	Computational Statistics		TBA	Sha	10/21-12/13	TBA	On Line Technology Fee $114.00			
84655	MA	5781	R01	1OL	3.000	Time Series Analysis		TBA	Rho	09/03-10/18	TBA	On Line Technology Fee $114.00			
84988	MA	5781	R02	1OL	3.000	Time Series Analysis		TBA	Rho	09/03-10/18	TBA	On Line Technology Fee $114.00			

Mechanical Eng. - Engrg. Mech.

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
85026	MEEM	4295	R02	1OL	3.000	Intro Propulsion Sys for HEV		TBA	Robinette	09/03-12/13	TBA	On Line Technology Fee $114.00			
83343	MEEM	4650	R01	1OL	3.000	Quality Engineering		TBA	Tewari	09/03-12/13	TBA	On Line Technology Fee $114.00			
80607	MEEM	4990	47	1OL	3.000	Analysis & Design of Ctrl Sys		TBA	Parker	09/03-12/13	TBA	On Line Technology Fee $114.00			
84948	MEEM	5170	R02	1OL	3.000	Finite Element Methods in Engg		TBA	Ghosh	09/03-12/13	TBA	On Line Technology Fee $114.00			
84983	MEEM	5230	R02	1OL	3.000	Advanced Heat Transfer		TBA	Masoud	09/03-12/13	TBA	On Line Technology Fee $114.00			
84085	MEEM	5300	R01	1OL	3.000	Cybersecurity Indus Ctrl Sys		TBA	Goldsmith	09/03-12/13	TBA	On Line Technology Fee $114.00			
83344	MEEM	5650	R01	1OL	3.000	Advanced Quality Engineering		TBA	Tewari	09/03-12/13	TBA	On Line Technology Fee $114.00			
84714	MEEM	5655	R01	1OL	3.000	Lean Manufacturing		TBA	Johnson	09/03-12/13	TBA	On Line Technology Fee $114.00			
85014	MEEM	5700	L03	1OL	0.000	Dynamic Meas/Signal Analysis		TBA	Blough	09/03-12/13	TBA	Lab/Course Fee: $241.00 and On Line Technology Fee $152.00			
85013	MEEM	5700	R02	1OL	4.000	Dynamic Meas/Signal Analysis		TBA	Blough	09/03-12/13	TBA				
84904	MEEM	5811	R02	1OL	3.000	Automotive Systems		TBA	Naber	09/03-12/13	TBA	On Line Technology Fee $114.00			
82431	MEEM	5995	01	1OL	3.000	Graduate Research (Online)		TBA	Friedrich	09/03-12/13	TBA	Lab/Course Fee: $5,334.00			
82432	MEEM	5995	02	1OL	3.000	Graduate Research (Online)		TBA	TBA	09/03-12/13	TBA	Lab/Course Fee: $5,334.00			
82433	MEEM	5995	03	1OL	3.000	Graduate Research (Online)		TBA	Odegard	09/03-12/13	TBA	Lab/Course Fee: $5,334.00			
82434	MEEM	5995	04	1OL	2.000	Graduate Research (Online)		TBA	Parker	09/03-12/13	TBA	Lab/Course Fee: $3,556.00			
82439	MEEM	5995	05	1OL	1.000	Graduate Research (Online)		TBA	Friedrich	09/03-12/13	TBA	Lab/Course Fee: $1,778.00			
82440	MEEM	5995	06	1OL	1.000	Graduate Research (Online)		TBA	TBA	09/03-12/13	TBA	Lab/Course Fee: $1,778.00			
82441	MEEM	5995	07	1OL	1.000	Graduate Research (Online)		TBA	Odegard	09/03-12/13	TBA	Lab/Course Fee: $1,778.00			
82442	MEEM	5995	08	1OL	1.000	Graduate Research (Online)		TBA	Parker	09/03-12/13	TBA	Lab/Course Fee: $1,778.00			
82435	MEEM	6995	01	1OL	3.000	Doctoral Research (Online)		TBA	Friedrich	09/03-12/13	TBA	Lab/Course Fee: $5,334.00			
82436	MEEM	6995	02	1OL	3.000	Doctoral Research (Online)		TBA	TBA	09/03-12/13	TBA	Lab/Course Fee: $5,334.00			
82437	MEEM	6995	03	1OL	3.000	Doctoral Research		TBA	Odegard	09/03-	TBA	Lab/Course Fee:			

						(Online)				12/13		$5,334.00
82438	MEEM	6995	04	1OL	2.000	Doctoral Research (Online)	TBA	Parker	09/03-12/13	TBA	Lab/Course Fee: $3,556.00
82443	MEEM	6995	05	1OL	1.000	Doctoral Research (Online)	TBA	Friedrich	09/03-12/13	TBA	Lab/Course Fee: $1,778.00
82444	MEEM	6995	06	1OL	1.000	Doctoral Research (Online)	TBA	Naber	09/03-12/13	TBA	Lab/Course Fee: $1,778.00
82445	MEEM	6995	07	1OL	1.000	Doctoral Research (Online)	TBA	Odegard	09/03-12/13	TBA	Lab/Course Fee: $1,778.00
82446	MEEM	6995	08	1OL	1.000	Doctoral Research (Online)	TBA	Parker	09/03-12/13	TBA	Lab/Course Fee: $1,778.00
82522	MEEM	6995	09	1OL	3.000	Doctoral Research (Online)	TBA	TBA	09/03-12/13	TBA	Lab/Course Fee: $5,334.00
82950	MEEM	6995	10	1OL	3.000	Doctoral Research (Online)	TBA	TBA	09/03-12/13	TBA	Lab/Course Fee: $5,334.00
83116	MEEM	6995	11	1OL	2.000	Doctoral Research (Online)	TBA	TBA	09/03-12/13	TBA	Lab/Course Fee: $3,556.00
83269	MEEM	6995	12	1OL	1.000	Doctoral Research (Online)	TBA	Steelman	09/03-12/13	TBA	Lab/Course Fee: $1,778.00
83452	MEEM	6995	13	1OL	4.000	Doctoral Research (Online)	TBA	TBA	09/03-12/13	TBA	Lab/Course Fee: $7,112.00
83469	MEEM	6995	14	1OL	1.000	Doctoral Research (Online)	TBA	TBA	09/03-12/13	TBA	Lab/Course Fee: $1,778.00
83496	MEEM	6995	15	1OL	2.000	Doctoral Research (Online)	TBA	King	09/03-12/13	TBA	Lab/Course Fee: $3,556.00
83695	MEEM	6995	16	1OL	1.000	Doctoral Research (Online)	TBA	TBA	09/03-12/13	TBA	Lab/Course Fee: $1,778.00

Physics

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
84345	PH	1090	0B	1OL	3.000	The Physics Behind Music		TBA		09/03-12/13	TBA	On Line Technology Fee $114.00 and Lab/Course Fee: $31.00			
81820	PH	1600	0B	1OL	2.000	Introductory Astronomy		TBA		09/03-12/13	TBA	Lab/Course Fee: $31.00 and On Line Technology Fee $76.00			

Psychology

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
83430	PSY	4500	R01	1OL	1.000	Senior Seminar		TBA		09/03-12/13	TBA	On Line Technology Fee $38.00			

Social Sciences

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date	Location	Fee

													(MM/DD)
84949	SS	5301	0B	1OL	3.000	The Policy Process		TBA	Wellstead	09/03-12/13	TBA	On Line Technology Fee $114.00	

Surveying

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
84970	SU	3300	L02	1OL	0.000	Geospatial Monitoring		TBA	Hollingsworth	09/03-12/13	TBA	On Line Technology Fee $114.00			
84969	SU	3300	R02	1OL	3.000	Geospatial Monitoring		TBA	Hollingsworth	09/03-12/13	TBA				
83427	SU	4142	L01	1OL	0.000	Terrestrial LIDAR Scanning		TBA	Chiabrando	09/03-12/13	TBA	On Line Technology Fee $114.00 and Lab/Course Fee: $50.00			
83426	SU	4142	R01	1OL	3.000	Terrestrial LIDAR Scanning		TBA	Chiabrando	09/03-12/13	TBA				
84814	SU	5011	R02	1OL	3.000	Cadastre and LIS		TBA	Levin	09/03-12/13	TBA				
82841	SU	5023	R01	1OL	3.000	Geospatial Positioning		TBA	Leick	09/03-12/13	TBA	On Line Technology Fee $114.00			
83429	SU	5142	L01	1OL	0.000	Terrestrial LIDAR Scanning		TBA	Chiabrando	09/03-12/13	TBA	On Line Technology Fee $114.00 and Lab/Course Fee: $50.00			
83428	SU	5142	R01	1OL	3.000	Terrestrial LIDAR Scanning		TBA	Chiabrando	09/03-12/13	TBA				
83054	SU	5540	L01	1OL	0.000	Space Photogrammetry		TBA	Titarov	09/03-12/13	TBA	On Line Technology Fee $114.00			
83053	SU	5540	R01	1OL	3.000	Space Photogrammetry		TBA	Titarov	09/03-12/13	TBA				

Systems Admin. Technology

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
82842	SAT	5001	R01	1OL	3.000	Intro to Medical Informatics		TBA	Zhou	09/03-12/13	TBA	On Line Technology Fee $114.00			
84817	SAT	5114	R02	1OL	3.000	Intro to AI in Health		TBA	Hembroff	09/03-12/13	TBA	On Line Technology Fee $114.00			
83424	SAT	5151	L02	1OL	0.000	App Integrat/Interoperability		TBA	Tang	09/03-12/13	TBA	On Line Technology Fee $114.00			
83423	SAT	5151	R02	1OL	3.000	App Integrat/Interoperability		TBA	Tang	09/03-12/13	TBA				
83992	SAT	5255	0A	1OL	3.000	Medical Imaging I		TBA	Peck	09/03-12/13	TBA	On Line Technology Fee $114.00			

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Spring 2020
Feb 11, 2020

Schedule of Classes

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Chemical Engineering

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
12973	CM	2120	0C	1OL	3.000	Fund of Chem Engg 2		TBA				Sandell	01/13-04/24	TBA	On Line Technology Fee $114.00
14548	CM	3510	0C	1OL	3.000	Chemical Reaction Engineering		TBA				Shonnard	01/13-04/24	TBA	On Line Technology Fee $114.00

Chemistry

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
14880	CH	3505	0A	1OL	1.000	Math for Physical Chemistry I		TBA				Valenzano-Slough	01/13-02/28	TBA	On Line Technology Fee $38.00
13596	CH	4590	01	1OL	3.000	Quantum Chemistry		TBA				Valenzano-Slough	01/13-04/24	TBA	On Line Technology Fee $114.00
13597	CH	6590	01	1OL	3.000	Quantum Chemistry		TBA				Valenzano-Slough	01/13-04/24	TBA	On Line Technology Fee $114.00

Civil & Environmental Engrg

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
15070	CEE	4244	R02	1OL	3.000	Loads for Civil Structures		TBA				Morse	01/13-04/24	TBA	On Line Technology Fee $114.00

Economics

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
11989	EC	2001	0C	1OL	3.000	Principles of Economics		TBA				Muralidharan	01/13-04/24	TBA	On Line Technology Fee $114.00
12070	EC	3400	0C	1OL	3.000	Economic Decision Analysis		TBA				Castro Oliveira	01/13-04/24	TBA	On Line Technology Fee $114.00

Education

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee

14068	ED	5101	R01	1OL	1.000	Foundations of Online Teaching		TBA	Freeman	01/13-02/28	TBA	On Line Technology Fee $38.00
14981	ED	5101	R02	1OL	1.000	Foundations of Online Teaching		TBA	Freeman	03/02-04/24	TBA	On Line Technology Fee $38.00
15058	ED	5540	01	1OL	3.000	Teacher Leadership		TBA	Hungwe	01/13-04/24	TBA	On Line Technology Fee $114.00

Electrical & Computer Engrg

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
11880	EE	3120	0B	1OL	3.000	Electric Energy Systems		TBA		Lukowski	01/13-04/24	TBA	On Line Technology Fee $114.00			
13474	EE	4219	0B	1OL	3.000	Intro to Elec Mach & Drives		TBA		Hassell	01/13-04/24	TBA	On Line Technology Fee $114.00			
12321	EE	4222	0B	1OL	3.000	Power System Analysis 2		TBA		Lukowski	01/13-04/24	TBA	On Line Technology Fee $114.00			
14960	EE	4250	0B	1OL	3.000	Modern Communication Systems		TBA		Oliveira	01/13-04/24	TBA	On Line Technology Fee $114.00			
15105	EE	4272	0B	1OL	3.000	Computer Networks		TBA		Cischke	01/13-04/24	TBA	On Line Technology Fee $114.00			
14736	EE	5220	0B	1OL	3.000	Transient Analysis Methods		TBA		Mork	01/13-04/24	TBA	On Line Technology Fee $114.00			
14738	EE	5232	0B	1OL	3.000	Power System Optimization		TBA		Ten	01/13-04/24	TBA	On Line Technology Fee $114.00			
15001	EE	5250	0B	1OL	3.000	Distribution Engineering		TBA		Ten	01/13-04/24	TBA	On Line Technology Fee $114.00			
13671	EE	5275	R02	1OL	3.000	Energy Storage Systems		TBA		Tajiri	01/13-04/24	TBA	On Line Technology Fee $114.00			
14663	EE	5300	0A	1OL	3.000	Math and Comp Methods in Eng		TBA		Schulz	01/13-04/24	TBA	On Line Technology Fee $114.00			
15161	EE	5300	0B	1OL	3.000	Math and Comp Methods in Eng		TBA		Schulz	01/13-04/24	TBA	On Line Technology Fee $114.00			
14925	EE	5315	R01	1OL	3.000	Cyber Security Auto Sys I		TBA		Goldsmith	01/13-04/24	TBA	On Line Technology Fee $114.00			
14662	EE	5500	0A	1OL	3.000	Prob & Stoch Processes		TBA		Schulz	01/13-04/24	TBA	On Line Technology Fee $114.00			
14285	EE	5812	R02	1OL	3.000	Automotive Control Systems		TBA		Burl	01/13-04/24	TBA	On Line Technology Fee $114.00			

Engineering Fundamentals

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
12451	ENG	5520	0B	1OL	3.000	Sustainable Futures II		TBA		Shonnard	01/13-04/24	TBA	On Line Technology Fee $114.00			

Enterprise

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
11538	ENT	3964	R01	1OL	1.000	Project Management		TBA	Woods	01/13-04/24	TBA	On Line Technology Fee $38.00			

Forest Resources & Env Science

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
13569	FW	3765	0A	1OL	1.000	Maple Syrup, Mgmt. & Culture		TBA	Bal	01/13-04/24	TBA	On Line Technology Fee $38.00 and Lab/Course Fee: $50.00			
13284	FW	5510	25	1OL	3.000	Spec Topics in Nat Resources		TBA	Bal	01/13-04/24	TBA	On Line Technology Fee $114.00			

Humanities

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
14829	HU	2538	R02	1OL	3.000	British Experience in Lit		TBA	Strickland	01/13-04/24	TBA	On Line Technology Fee $114.00			

Materials Sci. & Engineering

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
14453	MSE	5120	0B	1OL	3.000	Thermodynamics and Kinetics II		TBA	Hackney	01/13-04/24	TBA	On Line Technology Fee $114.00			
14457	MSE	5130	0B	1OL	3.000	Crystallography & Diffraction		TBA	Wang	01/13-04/24	TBA				
14459	MSE	5130	L02	1OL	0.000	Crystallography & Diffraction		TBA	Laitila	01/13-04/24	TBA	Lab/Course Fee: $100.00 and On Line Technology Fee $114.00			
14599	MSE	5540	0B	1OL	3.000	Adv. Computational Mater Sci		TBA	Wang	01/13-04/24	TBA				
14600	MSE	5540	L02	1OL	0.000	Adv. Computational Mater Sci		TBA	Wang	01/13-04/24	TBA	On Line Technology Fee $114.00			
14464	MSE	5900	02	1OL	1.000	Graduate Professional Prep		TBA	Hackney	01/13-04/24	TBA	On Line Technology Fee $38.00			

Mathematical Sciences

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
12358	MA	2320	R02	1OL	2.000	Elementary Linear Algebra		TBA	Gregersen	01/13-04/24	TBA	On Line Technology Fee $76.00			
12121	MA	3520	R02	1OL	2.000	Elem Differential Equations		TBA	Kulasekera Mudiyanselage	01/13-04/24	TBA	On Line Technology Fee $76.00			
12120	MA	3710	R05	1OL	3.000	Engineering Statistics		TBA	Kamischke	01/13-04/24	TBA	On Line Technology Fee $114.00			

14780	MA	4700	R01	1OL	3.000	Prob and Stat Inf I	TBA	Kendall	01/13-02/28	TBA	On Line Technology Fee $114.00	
14779	MA	4705	R01	1OL	3.000	Prob and Stat Inf II	TBA	Kendall	03/02-04/24	TBA	On Line Technology Fee $114.00	
14778	MA	4720	R02	1OL	3.000	Design/Analysis of Experiments	TBA	Zhang	01/13-02/28	TBA	On Line Technology Fee $114.00	
14781	MA	5701	R02	1OL	3.000	Statistical Methods	TBA	Molzon	03/02-04/24	TBA	On Line Technology Fee $114.00	
14989	MA	5701	R03	1OL	3.000	Statistical Methods	TBA	Molzon	03/02-04/24	TBA	On Line Technology Fee $114.00	

Mechanical Eng. - Engrg. Mech.

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
14728	MEEM	4650	R01	1OL	3.000	Quality Engineering		TBA	Johnson	01/13-04/24	TBA	On Line Technology Fee $114.00			
14992	MEEM	4730	R02	1OL	3.000	Dynamic System Simulation		TBA	Parker	01/13-04/24	TBA	On Line Technology Fee $114.00			
14525	MEEM	5010	R01	1OL	3.000	Prof. Engr. Communication		TBA	Barr	01/13-04/24	TBA	On Line Technology Fee $114.00			
15139	MEEM	5250	R02	1OL	3.000	Internal Combustion Engines II		TBA	Naber	01/13-04/24	TBA	On Line Technology Fee $114.00			
14924	MEEM	5315	R01	1OL	3.000	Cyber Security Auto Sys I		TBA	Goldsmith	01/13-04/24	TBA	On Line Technology Fee $114.00			
14729	MEEM	5650	R01	1OL	3.000	Advanced Quality Engineering		TBA	Johnson	01/13-04/24	TBA	On Line Technology Fee $114.00			
15148	MEEM	5812	R02	1OL	3.000	Automotive Control Systems		TBA	Burl	01/13-04/24	TBA	On Line Technology Fee $114.00			
10340	MEEM	5990	46	1OL	3.000	Dynamic System Simulation		TBA	Parker	01/13-04/24	TBA	On Line Technology Fee $114.00			
10339	MEEM	5990	47	1OL	3.000	Al-Based Auto Sys w/Python		TBA	Goldsmith	01/13-04/24	TBA	On Line Technology Fee $114.00			
12502	MEEM	5995	01	1OL	3.000	Graduate Research (Online)		TBA	Friedrich	01/13-04/24	TBA	Lab/Course Fee: $5,334.00			
12510	MEEM	5995	02	1OL	1.000	Graduate Research (Online)		TBA	Friedrich	01/13-04/24	TBA	Lab/Course Fee: $1,778.00			
15113	MEEM	6010	R02	1OL	3.000	Engr Research Communications		TBA	Barr	01/13-04/24	TBA	On Line Technology Fee $114.00			
12506	MEEM	6995	01	1OL	3.000	Doctoral Research (Online)		TBA	Friedrich	01/13-04/24	TBA	Lab/Course Fee: $5,334.00			
12507	MEEM	6995	02	1OL	1.000	Doctoral Research (Online)		TBA	Steelman	01/13-04/24	TBA	Lab/Course Fee: $1,778.00			
12508	MEEM	6995	03	1OL	3.000	Doctoral Research (Online)		TBA	TBA	01/13-04/24	TBA	Lab/Course Fee: $5,334.00			
12509	MEEM	6995	04	1OL	3.000	Doctoral Research		TBA	TBA	01/13-	TBA	Lab/Course Fee: $5,334.00			

						(Online)			04/24		
12514	MEEM	6995	05	1OL	1.000	Doctoral Research (Online)	TBA	Friedrich	01/13-04/24	TBA	Lab/Course Fee: $1,778.00
12515	MEEM	6995	06	1OL	1.000	Doctoral Research (Online)	TBA	TBA	01/13-04/24	TBA	Lab/Course Fee: $1,778.00
12516	MEEM	6995	07	1OL	1.000	Doctoral Research (Online)	TBA	TBA	01/13-04/24	TBA	Lab/Course Fee: $1,778.00
12517	MEEM	6995	08	1OL	1.000	Doctoral Research (Online)	TBA	TBA	01/13-04/24	TBA	Lab/Course Fee: $1,778.00
12653	MEEM	6995	09	1OL	3.000	Doctoral Research (Online)	TBA	TBA	01/13-04/24	TBA	Lab/Course Fee: $5,334.00
12863	MEEM	6995	10	1OL	1.000	Doctoral Research (Online)	TBA	TBA	01/13-04/24	TBA	Lab/Course Fee: $1,778.00
12894	MEEM	6995	11	1OL	3.000	Doctoral Research (Online)	TBA	TBA	01/13-04/24	TBA	Lab/Course Fee: $5,334.00
13002	MEEM	6995	12	1OL	2.000	Doctoral Research (Online)	TBA	TBA	01/13-04/24	TBA	Lab/Course Fee: $3,556.00
13252	MEEM	6995	13	1OL	3.000	Doctoral Research (Online)	TBA	TBA	01/13-04/24	TBA	Lab/Course Fee: $5,334.00
13254	MEEM	6995	14	1OL	4.000	Doctoral Research (Online)	TBA	TBA	01/13-04/24	TBA	Lab/Course Fee: $7,112.00
13515	MEEM	6995	15	1OL	1.000	Doctoral Research (Online)	TBA	TBA	01/13-04/24	TBA	Lab/Course Fee: $1,778.00
13523	MEEM	6995	16	1OL	1.000	Doctoral Research (Online)	TBA	TBA	01/13-04/24	TBA	Lab/Course Fee: $1,778.00

Physics

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
11875	PH	1090	0A	1OL	3.000	The Physics Behind Music		TBA	Black	01/13-04/24	TBA	On Line Technology Fee $114.00 and Lab/Course Fee: $31.00			
13626	PH	1090	0B	1OL	3.000	The Physics Behind Music		TBA	Black	01/13-04/24	TBA	On Line Technology Fee $114.00 and Lab/Course Fee: $31.00			
13470	PH	1500	0A	1OL	2.000	Extraordinary Concepts in Phys		TBA	Nemiroff	01/13-04/24	TBA	On Line Technology Fee $76.00			
11753	PH	1600	0A	1OL	2.000	Introductory Astronomy		TBA	Black , Slough	01/13-04/24	TBA	Lab/Course Fee: $31.00 and On Line Technology Fee $76.00			

Psychology

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
14851	PSY	4500	R01	1OL	1.000	Senior Seminar		TBA	Tislar	01/13-04/24	TBA	On Line Technology Fee $38.00			

Surveying

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
14710	SU	5010	R02	1OL	3.000	Geospatia Concepts, Tech, Data		TBA	Levin	01/13-04/24	TBA	On Line Technology Fee $114.00			
14916	SU	5012	L02	1OL	0.000	Geospatial Data MIning		TBA	Levin	01/13-04/24	TBA	On Line Technology Fee $114.00			
14915	SU	5012	R02	1OL	3.000	Geospatial Data MIning		TBA	Levin	01/13-04/24	TBA				
14922	SU	5013	L02	1OL	0.000	Hydrographic Mapping		TBA	Hollingsworth	01/13-04/24	TBA	On Line Technology Fee $114.00			
14921	SU	5013	R02	1OL	3.000	Hydrographic Mapping		TBA	Hollingsworth	01/13-04/24	TBA				
14256	SU	5023	R02	1OL	3.000	Geospatial Positioning		TBA	Leick	01/13-04/24	TBA	On Line Technology Fee $114.00			
12780	SU	5541	R01	1OL	3.000	Close-range Photogrammetry		TBA	Chiabrando	01/13-04/24	TBA	On Line Technology Fee $114.00			

Systems Admin. Technology

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
15102	SAT	5114	R02	1OL	3.000	Intro to AI in Health		TBA	Hembroff	01/13-04/24	TBA	On Line Technology Fee $114.00			
12772	SAT	5131	R02	1OL	3.000	System Analysis and Design		TBA	Peck	01/13-04/24	TBA	On Line Technology Fee $114.00			
15055	SAT	5141	R02	1OL	3.000	Clinical Support Modeling		TBA	Hembroff	01/13-04/24	TBA	On Line Technology Fee $114.00			
12774	SAT	5241	R02	1OL	3.000	Designing Security Systems		TBA	Tang	01/13-04/24	TBA	On Line Technology Fee $114.00			
13986	SAT	5256	0B	1OL	3.000	Medical Imaging II		TBA	Peck	01/13-04/24	TBA	On Line Technology Fee $114.00			
13581	SAT	5261	R02	1OL	3.000	Medical Image Analysis		TBA	Tang	01/13-04/24	TBA	On Line Technology Fee $114.00			
15054	SAT	5990	02	1OL	3.000	Applied AI in Health		TBA	Zhou	01/13-04/24	TBA	On Line Technology Fee $114.00			

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Schedule of Classes

Click on CRN to view prereq, restrictions and other course details.
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Business Administration

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
51714	BA	5650	0A	1OL	3.000	Project Management		TBA	Leinonen	05/11-06/25	TBA	On Line Technology Fee $114.00			

Chemical Engineering

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
51129	CM	2110	0A	1OL	3.000	Fund of Chem Engg 1		TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $114.00			
51131	CM	2120	0B	1OL	3.000	Fund of Chem Engg 2		TBA	TBA	06/29-08/13	TBA	On Line Technology Fee $114.00			

Chemistry

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
51341	CH	1150	0B	1OL	3.000	University Chemistry I		TBA	Charlesworth	06/29-08/13	TBA	On Line Technology Fee $114.00			
51522	CH	1160	0A	1OL	3.000	University Chemistry II		TBA	Charlesworth	05/11-06/25	TBA	On Line Technology Fee $114.00			
51433	CH	1160	0B	1OL	3.000	University Chemistry II		TBA	Charlesworth	06/29-08/13	TBA	On Line Technology Fee $114.00			
50541	CH	2410	0A	1OL	3.000	Organic Chemistry I		TBA	Galerneau	05/11-06/25	TBA	On Line Technology Fee $114.00			
50741	CH	2420	0B	1OL	3.000	Organic Chemistry II		TBA	TBA	06/29-08/13	TBA	On Line Technology Fee $114.00			
52324	CH	3505	0A	1OL	1.000	Math for Physical Chemistry I		TBA	Valenzano-Slough	06/29-08/13	TBA	On Line Technology Fee $38.00			
51518	CH	3510	0A	1OL	3.000	Ph Chem I: Therm, Equil, Kinet		TBA	Valenzano-Slough	05/11-06/25	TBA	On Line Technology Fee $114.00			

Civil & Environmental Engrg

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
51829								TBA			TBA				

	CEE	3620	0A	1OL	4.000	Water Resources Engineering			Barkdoll	06/29-08/13			
51830	CEE	3620	L01	1OL	0.000	Water Resources Engineering		TBA	Barkdoll	06/29-08/13	TBA	On Line Technology Fee $114.00 and Lab/Course Fee: $120.00	
51831	CEE	4640	0A	1OL	3.000	Stormwater Management and LID		TBA	Barkdoll	06/29-08/13	TBA	On Line Technology Fee $114.00	
52378	CEE	5213	R01	1OL	3.000	Concrete/Masonry Building Sys.	TBA		TBA	05/11-08/13	TBA	On Line Technology Fee $114.00	
51832	CEE	5640	0A	1OL	3.000	Stormwater Management and LID		TBA	Barkdoll	06/29-08/13	TBA	On Line Technology Fee $114.00	

Computer Science

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
50687	CS	1121	L01	1OL	0.000	Intro to Programming I		TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $114.00 and Lab/Course Fee: $56.65			
50686	CS	1121	R01	1OL	3.000	Intro to Programming I		TBA	TBA	05/11-06/25	TBA				
51713	CS	1122	R01	1OL	0.000/3.000	Intro to Programming II		TBA	Pomerville	05/11-06/25	TBA	Lab/Course Fee: $56.65			
51814	CS	1142	R01	1OL	3.000	Programming at HW/SW Interface		TBA	Vertanen	05/11-06/25	TBA	On Line Technology Fee $114.00			
52281	CS	4461	R01	1OL	3.000	Computer Networks		TBA	Jalooli	05/11-06/25	TBA	On Line Technology Fee $114.00			
51815	CS	4710	R01	1OL	3.000	Model-Driven Software Devel'mt		TBA	Ebnenasir	06/29-08/13	TBA	On Line Technology Fee $114.00			
52282	CS	4821	R01	1OL	3.000	Data Mining		TBA	Kakula	05/11-06/25	TBA	On Line Technology Fee $114.00			

Economics

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
51155	EC	2001	0A	1OL	3.000	Principles of Economics		TBA	Muralidharan	05/11-06/25	TBA	On Line Technology Fee $114.00			
50302	EC	3100	0A	1OL	3.000	International Economics		TBA	Castro Oliveira	05/11-06/25	TBA	On Line Technology Fee $114.00			
50724	EC	3400	0A	1OL	3.000	Economic Decision Analysis		TBA	Castro Oliveira	05/11-06/25	TBA	On Line Technology Fee $114.00			

Education

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
51810	ED	5101	R01	1OL	1.000	Foundations of		TBA	Freeman	05/11-	TBA	On Line Technology Fee			

						Online Teaching					06/25		$38.00		

Electrical & Computer Engrg

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
51684	EE	2111	0B	1OL	3.000	Electric Circuits I		TBA	Hassell	05/11-06/25	TBA	On Line Technology Fee $114.00			
51185	EE	3010	0A	1OL	3.000	Circuits and Instrumentation		TBA	TBA	05/11-08/13	TBA				
51186	EE	3010	L01	1OL	0.000	Circuits and Instrumentation		TBA	TBA	05/11-08/13	TBA	Lab/Course Fee: $150.00 and On Line Technology Fee $114.00			
51187	EE	3120	0B	1OL	3.000	Electric Energy Systems		TBA	Lukowski	05/11-06/25	TBA	On Line Technology Fee $114.00			
52307	EE	4250	0A	1OL	3.000	Modern Communication Systems		TBA	Oliveira	05/11-06/25	TBA	On Line Technology Fee $114.00			
52308	EE	4272	0A	1OL	3.000	Computer Networks		TBA	Cischke	05/11-06/25	TBA	On Line Technology Fee $114.00			
51812	EE	5290	02	1OL	3.000	Selected Topics in Power Sys 1		TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $114.00			
52408	EE	5300	0A	1OL	3.000	Math and Comp Methods in Eng		TBA	Schulz	05/11-08/13	TBA	On Line Technology Fee $114.00			
52407	EE	5500	0A	1OL	3.000	Prob & Stoch Processes		TBA	Schulz	05/11-08/13	TBA	On Line Technology Fee $114.00			
52409	EE	5521	0A	1OL	3.000	Detection & Estimation Theory		TBA	Schulz	05/11-08/13	TBA	On Line Technology Fee $114.00			

Engineering Fundamentals

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
51743	ENG	4300	0A	1OL	3.000	Project Management		TBA	Johnson	05/11-06/25	TBA	On Line Technology Fee $114.00			

Finance

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
51405	FIN	3000	0A	1OL	3.000	Principles of Finance		TBA	Knewtson	06/29-08/13	TBA	On Line Technology Fee $114.00			
51492	FIN	4801	L01	1OL	2.000	Applied Portfolio Management I		TBA	Johnson	05/11-08/13	TBA	On Line Technology Fee $76.00			

Forest Resources & Env Science

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
52247	FW	4170	0A	1OL	2.000	Consulting Forestry		TBA	Storer	06/29-	TBA	On Line Technology Fee			

									08/13		$76.00 and Lab/Course Fee: $20.00				

Humanities

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
51827	HU	2291	R01	1OL	3.000	Lev I-A Spanish Lang and Cult		TBA	Alegre-Figuero	05/11-06/25	TBA	On Line Technology Fee $114.00			
52269	HU	2292	R01	1OL	3.000	Lev I-B Spanish Lang and Cult		TBA	Alegre-Figuero	05/11-06/25	TBA	On Line Technology Fee $114.00			
52054	HU	2324	0A	1OL	3.000	Introduction to Film		TBA	Shoos	05/11-06/25	TBA				
52055	HU	2324	L01	1OL	0.000	Introduction to Film		TBA	Shoos	05/11-06/25	TBA	On Line Technology Fee $114.00			
52056	HU	2501	R01	1OL	3.000	American Experience in Lit		TBA	Bergstrom	05/11-06/25	TBA	On Line Technology Fee $114.00			
52058	HU	2510	R01	1OL	3.000	Intro to Creative Writing		TBA	Seigel	05/11-06/25	TBA	On Line Technology Fee $114.00			
52059	HU	2538	R01	1OL	3.000	British Experience in Lit		TBA	Strickland	05/11-06/25	TBA	On Line Technology Fee $114.00			
52061	HU	2633	L01	1OL	0.000	Fund of Digital Imaging		TBA	Hristova	05/11-06/25	TBA	On Line Technology Fee $114.00			
52060	HU	2633	R01	1OL	3.000	Fund of Digital Imaging		TBA	Hristova	05/11-06/25	TBA				
52062	HU	2700	R01	1OL	3.000	Introduction to Philosophy		TBA	Adolphs	05/11-06/25	TBA	On Line Technology Fee $114.00			
52063	HU	2700	R02	1OL	3.000	Introduction to Philosophy		TBA	Marratto	06/29-08/13	TBA	On Line Technology Fee $114.00			
52277	HU	2810	R01	1OL	3.000	Research and Writing in Comm		TBA	Bell	05/11-06/25	TBA	On Line Technology Fee $114.00			
52064	HU	2820	R01	1OL	3.000	Communication and Culture		TBA	Collins	06/29-08/13	TBA	On Line Technology Fee $114.00			
52065	HU	2830	R01	1OL	3.000	Public Speaking & Multimedia		TBA	TBA	06/29-08/13	TBA	On Line Technology Fee $114.00			
52172	HU	2830	R02	1OL	3.000	Public Speaking & Multimedia		TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $114.00			
52066	HU	2910	R01	1OL	3.000	Language and Mind		TBA	TBA	06/29-08/13	TBA	On Line Technology Fee $114.00			
52067	HU	2910	R02	1OL	3.000	Language and Mind		TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $114.00			
52275	HU	2920	R01	1OL	3.000	Language and Society		TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $114.00			
52068	HU	3015	R01	1OL	3.000	Advanced Composition		TBA	De Herder	05/11-06/25	TBA	On Line Technology Fee $114.00			
51121	HU	3120	R01	1OL	3.000	Technical and Prof Comm		TBA	De Herder	05/11-06/25	TBA	On Line Technology Fee $114.00			

51619	HU	3120	R02	1OL	3.000	Technical and Prof Comm	TBA	Ward	06/29-08/13	TBA	On Line Technology Fee $114.00	
51828	HU	3120	R03	1OL	3.000	Technical and Prof Comm	TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $114.00	
51997	HU	3120	R04	1OL	3.000	Technical and Prof Comm	TBA	TBA	06/29-08/13	TBA	On Line Technology Fee $114.00	
52196	HU	3120	R05	1OL	3.000	Technical and Prof Comm	TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $114.00	
52205	HU	3120	R06	1OL	3.000	Technical and Prof Comm	TBA	Lozon	06/29-08/13	TBA	On Line Technology Fee $114.00	
52276	HU	3151	R01	1OL	3.000	The Rhetoric of Everyday Texts	TBA	Romney	05/11-06/25	TBA	On Line Technology Fee $114.00	
51545	HU	3261	R01	1OL	3.000	Communicating Across Cultures	TBA	Fonkoue	05/11-06/25	TBA	On Line Technology Fee $114.00	
51544	HU	3261	R02	1OL	3.000	Communicating Across Cultures	TBA	Fonkoue	06/29-08/13	TBA	On Line Technology Fee $114.00	
52274	HU	3293	01	1OL	3.000	Level IIC Spanish Comp & Conv	TBA	Viera-Ramos	05/11-06/25	TBA	On Line Technology Fee $114.00	
52071	HU	3502	R01	1OL	3.000	Mythology	TBA	Thomas	05/11-06/25	TBA	On Line Technology Fee $114.00	
52072	HU	3504	R01	1OL	3.000	Studies in the Novel	TBA	Viera-Ramos	05/11-06/25	TBA	On Line Technology Fee $114.00	
52359	HU	3545	R01	1OL	3.000	Literature Across Borders	TBA	Amador	05/11-06/25	TBA	On Line Technology Fee $114.00	
52360	HU	3545	R02	1OL	3.000	Literature Across Borders	TBA	Amador	06/29-08/13	TBA	On Line Technology Fee $114.00	
52077	HU	3872	R01	1OL	3.000	Color, Visuality, and Culture	TBA	Hristova	05/11-06/25	TBA	On Line Technology Fee $114.00	

Management Information Systems

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
51715	MIS	2000	R01	1OL	3.000	IS/IT Management		TBA	Wall	06/29-08/13	TBA	On Line Technology Fee $114.00			

Marketing

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
51416	MKT	3000	0A	1OL	3.000	Principles of Marketing		TBA	Hong	05/11-06/25	TBA	On Line Technology Fee $114.00			

Materials Sci. & Engineering

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
52097	MSE	2100	0B	1OL	3.000	Intro Matls Science & Engg		TBA	Hackney	06/29-08/13	TBA	On Line Technology Fee $114.00 and Lab/Course			

												Fee: $20.00
52221	MSE	5100	0B	1OL	4.000	Mat's Sci & Eng Advance Topics		TBA	Hackney	06/29-08/13	TBA	On Line Technology Fee $152.00

Mathematical Sciences

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
51444	MA	2160	L02	1OL	0.000	Calculus with Technology II		TBA	Gregersen	05/11-06/25	TBA	Lab/Course Fee: $74.00 and On Line Technology Fee $152.00			
51316	MA	2160	R02	1OL	4.000	Calculus with Technology II		TBA	TBA	05/11-06/25	TBA				
51240	MA	2320	R02	1OL	2.000	Elementary Linear Algebra		TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $76.00			
51445	MA	3160	L01	1OL	0.000	Multivariable Calc with Tech		TBA	Gregersen	06/29-08/13	TBA	Lab/Course Fee: $74.00 and On Line Technology Fee $152.00			
50033	MA	3160	R01	1OL	4.000	Multivariable Calc with Tech		TBA	TBA	06/29-08/13	TBA				
51481	MA	3520	R02	1OL	2.000	Elem Differential Equations		TBA	TBA	06/29-08/13	TBA	On Line Technology Fee $76.00			
51119	MA	3710	R02	1OL	3.000	Engineering Statistics		TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $114.00			
52192	MA	4515	R02	1OL	3.000	Intro Partial Diff Equations		TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $114.00			
52189	MA	4700	R01	1OL	3.000	Prob and Stat Inf I		TBA	Kendall	05/11-06/25	TBA	On Line Technology Fee $114.00			
52217	MA	4700	R02	1OL	3.000	Prob and Stat Inf I		TBA	Kendall	05/11-06/25	TBA	On Line Technology Fee $114.00			
52264	MA	4710	R01	1OL	3.000	Regression Analysis		TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $114.00			
52265	MA	4710	R02	1OL	3.000	Regression Analysis		TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $114.00			
52262	MA	5701	R01	1OL	3.000	Statistical Methods		TBA	TBA	06/29-08/13	TBA	On Line Technology Fee $114.00			
52263	MA	5701	R02	1OL	3.000	Statistical Methods		TBA	TBA	06/29-08/13	TBA	On Line Technology Fee $114.00			
52377	MA	5771	R01	1OL	3.000	Appl Generalized Linear Models		TBA	TBA	06/29-08/13	TBA	On Line Technology Fee $114.00			

Mechanical Eng. - Engrg. Mech.

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
52022	MEEM	2110	R02	1OL	3.000	Statics		TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $114.00			
52031	MEEM	2150	R02	1OL	3.000	Mechanics of		TBA	TBA	06/29-	TBA	On Line Technology Fee			

						Materials			08/13		$114.00
52080	MEEM	2201	R02	1OL	3.000	Introductory Thermodynamics	TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $114.00
52079	MEEM	2700	R02	1OL	3.000	Dynamics	TBA	TBA	06/29-08/13	TBA	On Line Technology Fee $114.00
52081	MEEM	3201	R02	1OL	4.000	Fluid Mechanics/Heat Transfer	TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $176.00
52082	MEEM	3400	R02	1OL	3.000	Mech Sys Design and Analysis	TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $114.00
52027	MEEM	3750	R02	1OL	4.000	Dynamic Systems	TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $176.00
52278	MEEM	4650	R01	1OL	3.000	Quality Engineering	TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $114.00
52280	MEEM	4655	R01	1OL	3.000	Production Planning	TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $114.00
52422	MEEM	5010	R01	1OL	3.000	Prof. Engr. Communication	TBA	Barr	05/11-08/13	TBA	
52279	MEEM	5650	R01	1OL	3.000	Advanced Quality Engineering	TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $114.00
51550	MEEM	5800	R01	1OL	3.000	Adv Engineering Mathematics	TBA	TBA	05/11-08/13	TBA	On Line Technology Fee $114.00
50123	MEEM	5990	05	1OL	3.000	Production Planning	TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $114.00
51292	MEEM	6995	01	1OL	3.000	Doctoral Research (Online)	TBA	Friedrich	05/11-08/13	TBA	Lab/Course Fee: $5,334.00
51293	MEEM	6995	02	1OL	6.000	Doctoral Research (Online)	TBA	TBA	05/11-08/13	TBA	Lab/Course Fee: $10,668.00
51296	MEEM	6995	03	1OL	1.000	Doctoral Research (Online)	TBA	Friedrich	05/11-08/13	TBA	Lab/Course Fee: $1,778.00
51360	MEEM	6995	04	1OL	3.000	Doctoral Research (Online)	TBA	Parker	05/11-08/13	TBA	Lab/Course Fee: $5,334.00
51364	MEEM	6995	05	1OL	1.000	Doctoral Research (Online)	TBA	TBA	05/11-08/13	TBA	Lab/Course Fee: $1,778.00
51365	MEEM	6995	06	1OL	3.000	Doctoral Research (Online)	TBA	Odegard	05/11-08/13	TBA	Lab/Course Fee: $5,334.00
51392	MEEM	6995	07	1OL	3.000	Doctoral Research (Online)	TBA	TBA	05/11-08/13	TBA	Lab/Course Fee: $5,334.00
51394	MEEM	6995	08	1OL	2.000	Doctoral Research (Online)	TBA	Odegard	05/11-08/13	TBA	Lab/Course Fee: $3,556.00
51430	MEEM	6995	09	1OL	1.000	Doctoral Research (Online)	TBA	Parker	05/11-08/13	TBA	Lab/Course Fee: $1,778.00
51465	MEEM	6995	10	1OL	2.000	Doctoral Research (Online)	TBA	TBA	05/11-08/13	TBA	Lab/Course Fee: $3,556.00
51521	MEEM	6995	11	1OL	3.000	Doctoral Research (Online)	TBA	TBA	05/11-08/13	TBA	Lab/Course Fee: $5,334.00

51617	MEEM	6995	12	1OL	3.000	Doctoral Research (Online)		TBA	TBA	05/11-08/13	TBA	Lab/Course Fee: $5,334.00
51618	MEEM	6995	13	1OL	1.000	Doctoral Research (Online)		TBA	Yang	05/11-08/13	TBA	Lab/Course Fee: $1,778.00

Operations & Supply Chain Mgmt

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
51417	OSM	3000	0A	1OL	3.000	Operations & Supply Chain Mgmt		TBA			TBA	Woods	06/29-08/13		On Line Technology Fee $114.00
52036	OSM	4300	0A	1OL	3.000	Project Management		TBA			TBA	Johnson	05/11-06/25		On Line Technology Fee $114.00

Physics

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
51120	PH	1090	0A	1OL	3.000	The Physics Behind Music		TBA			TBA	Suits	05/11-08/13		On Line Technology Fee $114.00 and Lab/Course Fee: $31.00
51084	PH	1110	0A	1OL	3.000	College Physics I		TBA			TBA	Black , Slough	05/11-06/25		Lab/Course Fee: $31.00 and On Line Technology Fee $114.00
51818	PH	1111	L02	1OL	1.000	College Physics I Laboratory		TBA			TBA	Black , Slough	05/11-06/25		On Line Technology Fee $38.00 and Lab/Course Fee: $206.00
51344	PH	1210	0A	1OL	3.000	College Physics II		TBA			TBA	Black , Slough	06/29-08/13		Lab/Course Fee: $31.00 and On Line Technology Fee $114.00
51106	PH	1600	0A	1OL	2.000	Introductory Astronomy		TBA			TBA	Black , Hona	05/11-06/25		Lab/Course Fee: $31.00 and On Line Technology Fee $76.00
51412	PH	2400	0A	1OL	3.000	Univ Phys IV-Waves/Modern Phys		TBA			TBA	Black , Slough	06/29-08/13		On Line Technology Fee $114.00 and Lab/Course Fee: $31.00

Psychology

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
51408	PSY	2000	0A	1OL	3.000	Introduction to Psychology		TBA			TBA	Steelman	05/11-06/25		On Line Technology Fee $114.00 and Lab/Course Fee: $125.00
52266	PSY	2110	R01	1OL	3.000	Educational Psychology		TBA			TBA	Hungwe	05/11-06/25		On Line Technology Fee $114.00
52038	PSY	2400	R01	1OL	3.000	Health Psychology		TBA			TBA	Tislar	05/11-06/25		On Line Technology Fee $114.00
52267	PSY	3030	R01	1OL	3.000	Abnormal Psychology		TBA			TBA	Watral	06/29-08/13		On Line Technology Fee $114.00
52268	PSY	3720	R01	1OL	3.000	Social Psychology		TBA			TBA	Lehman	06/29-		On Line Technology Fee

										08/13		$114.00			

Social Sciences

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
52315	SS	2100	0A	1OL	3.000	Intro to Cultural Anthropology		TBA	Baird	05/11-06/25	TBA	On Line Technology Fee $114.00			
52316	SS	2210	0A	1OL	3.000	Evolution of Cities		TBA	Lafreniere	05/11-06/25	TBA	On Line Technology Fee $114.00			
52355	SS	2300	0A	1OL	3.000	Environment and Society		TBA	Baird	05/11-06/25	TBA				
52356	SS	2300	R01	1OL	0.000	Environment and Society		TBA	Baird	05/11-06/25	TBA	On Line Technology Fee $114.00			
52178	SS	2400	0A	1OL	3.000	Intro Human Geography		TBA	Lafreniere	06/29-08/13	TBA	On Line Technology Fee $114.00			
52317	SS	2700	0A	1OL	3.000	Introduction to Sociology		TBA	Schelly	05/11-06/25	TBA	On Line Technology Fee $114.00			
52323	SS	3530	0A	1OL	3.000	The Automobile in America		TBA	Rouleau	06/29-08/13	TBA	On Line Technology Fee $114.00			
52318	SS	3540	0A	1OL	3.000	History of Michigan		TBA	Rouleau	05/11-06/25	TBA	On Line Technology Fee $114.00			
52322	SS	3800	0A	1OL	3.000	Energy Policy and Technology		TBA	Sidortsov	06/29-08/13	TBA	On Line Technology Fee $114.00			
52321	SS	3801	0A	1OL	3.000	Science, Technology, & Society		TBA	Schelly	06/29-08/13	TBA	On Line Technology Fee $114.00			

Systems Admin. Technology

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
52085	SAT	2343	L01	1OL	0.000	Network Administration I		TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $152.00 and Lab/Course Fee: $125.00			
52084	SAT	2343	R01	1OL	4.000	Network Administration I		TBA	TBA	05/11-06/25	TBA				
51558	SAT	2511	L01	1OL	0.000	Microsoft System Admin		TBA	Arney	05/11-06/25	TBA	On Line Technology Fee $152.00 and Lab/Course Fee: $125.00			
51557	SAT	2511	R01	1OL	4.000	Microsoft System Admin		TBA	Arney	05/11-06/25	TBA				
51560	SAT	2711	L01	1OL	0.000	Linux System Administration		TBA	Arney	05/11-06/25	TBA	On Line Technology Fee $152.00 and Lab/Course Fee: $125.00			
51559	SAT	2711	R01	1OL	4.000	Linux System Administration		TBA	Arney	05/11-06/25	TBA				
52089	SAT	3310	L01	1OL	0.000	Scripting Admin & Automation		TBA	Arney	05/11-06/25	TBA	On Line Technology Fee $114.00 and Lab/Course			

											Fee: $125.00
52088	SAT	3310	R01	1OL	3.000	Scripting Admin & Automation	TBA	Arney	05/11-06/25	TBA	
51656	SAT	3611	L01	1OL	0.000	Infrastructure Service Admin	TBA	Arney	05/11-06/25	TBA	On Line Technology Fee $114.00 and Lab/Course Fee: $125.00
51655	SAT	3611	R01	1OL	3.000	Infrastructure Service Admin	TBA	Arney	05/11-06/25	TBA	
51562	SAT	3820	L01	1OL	0.000	Wireless System Administration	TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $114.00 and Lab/Course Fee: $125.00
51561	SAT	3820	R01	1OL	4.000	Wireless System Administration	TBA	TBA	05/11-06/25	TBA	
52095	SAT	4812	L01	1OL	0.000	Cyber Security II	TBA	Arney	05/11-06/25	TBA	On Line Technology Fee $114.00 and Lab/Course Fee: $125.00
52094	SAT	4812	R01	1OL	3.000	Cyber Security II	TBA	Arney	05/11-06/25	TBA	
52361	SAT	4816	R01	1OL	3.000	Digital Forensics	TBA	TBA	05/11-06/25	TBA	
51623	SAT	4996	02	1OL	3.000	Big Data: Tools & Techniques	TBA	Tang	06/29-08/13	TBA	On Line Technology Fee $114.00
51741	SAT	5990	02	1OL	3.000	Big Data: Tools & Techniques	TBA	Tang	06/29-08/13	TBA	On Line Technology Fee $114.00
51789	SAT	5998	01	1OL	3.000	Experience in Med Informatics	TBA	TBA	06/29-08/13	TBA	On Line Technology Fee $114.00

University Wide

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
51496	UN	1015	R02	1OL	3.000	Composition		TBA	TBA	05/11-06/25	TBA	On Line Technology Fee $114.00			
51497	UN	1015	R03	1OL	3.000	Composition		TBA	TBA	06/29-08/13	TBA	On Line Technology Fee $114.00			
51493	UN	1025	0A	1OL	3.000	Global Issues		TBA	Rhodes	05/11-06/25	TBA	On Line Technology Fee $114.00			
51494	UN	1025	0B	1OL	3.000	Global Issues		TBA	Sweitz	06/29-08/13	TBA	On Line Technology Fee $114.00			

Visual and Performing Arts

CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	Instructor	Date (MM/DD)	Location	Fee
52349	FA	2222	R01	1OL	3.000	Film Music		TBA	Meyer	05/11-06/25	TBA	On Line Technology Fee $114.00 and Lab/Course Fee: $50.00			
51665	FA	2330	R01	1OL	3.000	Art Appreciation		TBA	Portfleet	06/29-08/13	TBA	Lab/Course Fee: $25.00 and On Line Technology			

											Fee $114.00
51162	FA	2520	R01	1OL	3.000	Music Appreciation	TBA	Neves	06/29-08/13	TBA	Lab/Course Fee: $25.40 and On Line Technology Fee $114.00
51620	FA	2520	R02	1OL	3.000	Music Appreciation	TBA	Christianson	05/11-06/25	TBA	Lab/Course Fee: $25.40 and On Line Technology Fee $114.00
51499	FA	3560	R01	1OL	3.000	Music History	TBA	Meyer	05/11-06/25	TBA	Lab/Course Fee: $25.40 and On Line Technology Fee $114.00
51156	FA	3625	0A	1OL	3.000	History of Rock	TBA	Neves	05/11-06/25	TBA	On Line Technology Fee $114.00 and Lab/Course Fee: $20.00
52352	FA	3630	0A	1OL	3.000	Beatles and Beach Boys	TBA	Neves	06/29-08/13	TBA	On Line Technology Fee $114.00
51526	FA	3880	L01	1OL	1.000	Readings in Dramatic Lit	TBA	Plummer	05/11-08/13	TBA	On Line Technology Fee $38.00 and Lab/Course Fee: $20.00

Return to Previous

Course Title	Departments	Level	Course Description
BL 3310 Environmental Microbiology	Biological Science	UG	General principles of microbiology, focusing on both the use and control of microorganisms. Topics include microbial structure, function, growth, metabolism, and diversity, as well as microbial involvement in water and waste treatment, waterborne diseases, and pollution control.
BL 4070 Environmental Toxicology	Biological Science	UG	Introduction to the range of anthropogenic pollutants released into the environment. Concepts of bioaccumulation, biomagnification and environmental persistence, modes of toxicity and detoxification, transport and fate in aquatic and terrestrial ecosystems. Toxic equivalent factors and quotients, regulatory guidelines and practices.
BL 4461 Ecosystem Ecology	Biological Science	UG	Study of processes in aquatic and terrestrial ecosystems, including energy flow, ecosystem production, and nutrient cycling. We will explore these processes through a historical overview of influential research programs and regional to global case studies.
BL 4120 Environmental Remediation	Biological Science	UG	Toxicology of major environmental pollutants, their dose-response relationships and fundamentals of environmental remediation. Topics include physical, chemical, and biological remediation methods and effect of environmental toxins on biological systems. Laboratory will involve the application of chemical and biological remediation techniques.
CEE 1001 Sustainability and Civil Engr Practice	Civil and Environmental Engineering	UG	Course will focus on characterizing the motivation for and principles of sustainable engineering and provide an introduction to tools used in sustainable design. Course topics follow a logical and linear progression which includes the societal context, scientific motivation, and application of sustainable practices in civil engineering.

CEE 3101 Civil Engineering Materials	Civil and Environmental Engineering	UG	This course relates to specific material and design choices that promote sustainable designs and materials (recycled materials, reduction in energy production, GHG emissions, long-lasting designs, etc.) Covers properties and behavior of typical civil engineering materials, including wood, metals, aggregates, asphalt cement concrete, portland cement concrete, and composites. Laboratory exercises demonstrate selected engineering mechanics principles, including elastic, inelastic, and time-dependent material behavior. Additional topics include testing techniques, materials standards, report writing, and presentation of experimental data.
CEE 3501 Environmental Engineering Fundamentals	Civil and Environmental Engineering	UG	Basic principles and calculations for environmental engineering. Covers application of mass balance, energy balance, and physical/chemical/biological principles to water and wastewater treatment, surface water quality, air quality, solid waste management, and groundwater quality.
CEE 3503 Environmental Engineering	Civil and Environmental Engineering	UG	Application of fundamental chemical, biological, and physical principles of environmental engineering to design and operation of systems used for water and wastewater treatment, solid waste management, air pollution control, and analysis of quality of surface water, air, and groundwater.
CEE 4401 Pavement Design	Civil and Environmental Engineering	UG	This course relates to specific material and design choices that promote sustainable designs and materials (recycled materials, reduction in energy production, GHG emissions, long-lasting designs, etc.). Analysis, behavior, performance, and structural design of highway pavements. Introduces pavement types and performance concepts, highway traffic and subgrade characterization, materials employed in highway construction, and highway drainage. Presents common methods used for designing pavement structures as well as mechanistic- empirical approaches.

CEE 4505 Surface Water Quality Engineering	Civil and Environmental Engineering	UG	Develops the scientific basis for water quality management in lakes and rivers. Considers the origin, behavior, and fate of nutrients and toxic substances. Introduces engineered approaches for lake management, including mass balance modeling. Presents techniques for water quality restoration and the legal framework supporting pollution control.
CEE 4504 Air Quality Engineering and Science	Civil and Environmental Engineering	UG	Overview of air quality regulation in the U.S. and world, including basic concepts of atmospheric chemistry and transport; fugitive, point, and area emissions; principles and tradeoffs of operation and design of air pollution control systems; and application of air quality models.
CEE 4506 Application of Sustainability Principles to Engineering Practice	Civil and Environmental Engineering	UG	Study of sustainability, engineering and design including systems analysis, life cycle analysis, biogeochemical cycles, energy balances, energy conservation and development, models for sustainable engineering, environmental regulations as sustainability instruments, sustainability in the build environment, and industrial ecology and compliance.

CEE 4511 Solid and Hazardous Waste Engineering	Civil and Environmental Engineering	UG	Develops the scientific basis for water quality management in lakes and rivers. Considers the origin, behavior, and fate of nutrients and toxic substances. Introduces engineered approaches for lake management, including mass balance modeling. Presents techniques for water quality restoration and the legal framework supporting pollution control.The course covers the characterization, treatment, separation, and disposal of solid and hazardous wastes, and the science and engineering for the management of solid and hazardous waste problems. Although much of the course is related to sustainability issues, a couple of specific sustainability topics covered are: 1) An introduction to pollution prevention, and industrial ecology/industrial symbiosis, and the goals and benefits of these approaches. 2) A review of the key approaches used for solid waste management, including the recycling of post consumer materials, physical transformations of solid waste, composting, and municipal solid waste combustion.
CEE 4515 Atmospheric Chemistry	Civil and Environmental Engineering	UG	Study of the photochemical processes governing the composition of the troposphere and stratosphere, with application to air pollution and climate change. Covers radical chain reaction cycles, heterogeneous chemistry, atmospheric radiative transfer, and measurement techniques for atmospheric gases.
CEE 4640 Stormwater Management and Low Impact Development	Civil and Environmental Engineering	UG	Design techniques for stormwater collection, conveyance, infiltration, and detention storage systems are discussed, both traditional stormwater management systems and newer approaches based on the philosophy of low impact development (LID) that seek not to alter the natural ecology of a site.

CEE 4905 Engineering Design Project	Civil and Environmental Engineering	UG	An engineering design project related to civil and environmental engineering. Not available to students who have taken CE4900 or CE4910. (Senior project ready as defined by major substitutes for prerequisites)
CEE 4915 International Engineering Field Experience	Civil and Environmental Engineering	UG	An engineering design project that incorporates an international experience. Must be taken in conjunction with CE4916 in order to fulfill senior design requirements. Must be senior project ready as defined by major department. iDesign - Panama; rural water supply for natives
CEE 4916 International Senior Design Field Project	Civil and Environmental Engineering	UG	An engineering design project that incorporates an international experience. Must be taken in conjunction with CE4915 in order to fulfill senior design requirements. Senior project ready as defined by major substitutes for prerequisites.
CM 3979 Alternative Energy Technologies and Processes	Chemical Engineering	UG	This course covers a wide range of alternative energy technologies with an emphasis on chemical and biochemical processing. Technologies covered may include biofuels, solar power, fuel cells, etc.
CM 4080 Undergraduate Research in BioFuels Engineering	Chemical Engineering	UG	An undergraduate research experience on bio-fuels engineering topics. Students work directly with faculty members on a research project. A report (written, poster, or oral) may be required.
CM 3120 Transport and Unit Operations 2	Chemical Engineering	UG	Mass transfer fundamentals applied to unit operations. Topics include Fick's Law, continuity equation with reaction and mass transfer co-efficients. Transient heat transfer and numerical solution are covered. Applications include absorption, distillation, extraction, adsorption, and membrane separations. Includes(a 1-wk module on transport of pollutants in the environment

CM 4310 Chemical Process Safety/Environment	Chemical Engineering	UG	A study of the technical fundamentals of chemical process safety and designing for the environment. Includes toxicology, industrial hygiene, source models, fires and explosions, relief systems, hazard identification, risk assessment, environmental fate and transport, hazardous waste generation, pollution prevention, and regulatory requirements. Includes a 4-wk module on environmentally conscious design of chemical processes and products
CMG 3200 Site Planning and Development	Chemical Engineering	UG	An examination of land development issues including: site analysis, environmental concerns, contouring, earthwork and grading, soils, route alignments, storm water management, sewer systems, zoning, and land planning. Incorporates CAD applications in the lab.
CMG 4800 Sustainable Construction	Construction Management	UG	An introduction to the philosophy and practice of sustainable building construction with emphasis on underlying socio-environmental philosophies, sustainable directed building technologies and materials, and case studies of contemporary green buildings to culminate in a simple sustainable design project.
EC 3300 Industrial Organization	Economics	UG	Economic analysis of market power and industry structure. Topics include the goals of public policy toward business, antitrust policy, economic regulation, public enterprise, and social regulation of health, safety, and the environment.
EC 4650 Environmental Economics	Economics	UG	Considers the efficient and equitable use of environmental resources, including air, water, land, wilderness and parks, wildlife and other ecological systems. Measures the benefits and costs of decreasing pollution, cleaner environment, and protecting scarce ecological resources. Addresses market failures and the economic valuation of environmental amenities.

EC 4640 Natural Resource Economics	Economics	UG	Studies the economics of nonrenewable resources (energy and minerals) and renewable resources (water, fisheries, forests and species). Discusses the economics of land use change, macroeconomic topics such as economic growth, sustainability and green accounting.
EET 4380 Alternative Energy Applications	Electrical Engineering Technology	UG	An overview of world energy resources and energy consumption trends. Fundamental principles, applications, and viability of alternative energy sources such as wind, solar, and tidal will also be presented.
ENG 3505 Modeling Lab for Sustainable Systems	Engineering Fundamentals	UG	A laboratory course to accompany Sustainable Futures I. Puts into modeling practice the concepts, methodologies, and systems modeling to generate design alternatives.
ENG 4510 Sustainable Futures 1	Engineering Fundamentals	UG	Covers introductory and intermediate concepts of Sustainable Development. Explores methods/tools for assessing sustainability (economic, environmental, societal impacts) of current and emerging industrial technologies. Explores relationships between government policies and markets for introducing sustainable technologies into national economies and corporations.
ENT 3956 Industrial Health and Safety	Enterprise	UG	Instruction of health and safety in engineering practice. Integrates the study of health and safety regulations, risks, and potential for improvement. Also covers the tremendous financial, ethical, and public relations implications of disregarding this critical aspect of engineering.
ENT 3979 Alternative Energy Technologies and Processes	Enterprise	UG	This course covers a wide range of alternative energy technologies with an emphasis on chemical and biochemical processing. Technologies covered may include biofuels, solar power, fuel cells, etc.
FW 2030 Natural Resources Conservation	Enterprise	UG	This course explores the history and evolution of conservation in thought and practice, with an emphasis on the writings and legacy of conservation pioneers such as Aldo Leopold.

FW 3010 Practice of Silviculture	Forest Resources and Environmental Science	UG	Methods of controlling the establishment, growth, composition, health and quality of forests and woodlands to meet the diverse needs and values of landowners and society on a sustainable basis. Course held at Ford Center, Alberta, MI.
FW 3020 Forest Ecology	Forest Resources and Environmental Science	UG	Environmental factors and plant and animal characteristics which control composition, structure, and function of forest ecosystems. Emphasis on how ecosystems change across space and time and knowledge needed to sustainably manage forest ecosystems for social, economic, and ecological benefits.
FW 3075 Introduction to Biotechnology	Forest Resources and Environmental Science	UG	The course covers basic concepts and practical applications in biotechnology. Topics include the use of biotechnology in agriculture, healthcare, and environmental remediation. Advances in gene containment, regulatory, societal and environmental issues associated with commercialization of biotechnological products will be discussed.
FW 3097 Forest Biomaterials	Forest Resources and Environmental Science	UG	Examines the nature and use of forest biomaterials and their role in the larger economy. Local and global advantages and challenges for using forest biomaterials will be addressed within the context of sustainability, covering topics such as economics, material and product engineering, policy, life cycle analysis, and supply chain management.
FW 3098 Adding Value to Forest Biomaterials	Forest Resources and Environmental Science	UG	Examines how forest biomaterials are converted from raw forms into intermediary or final products that can support a sustainable future. Manufacturing sites in the upper Midwest are visited during the week prior to the start of fall semester. Lecture topics include the forest bioeconomy, emerging and export markets, and industry challenges.
FW 3110 Natural Resource Policy	Forest Resources and Environmental Science	UG	Covers concepts related to social systems and natural resources. Offers a survey of natural resource policies and organizations. State and federal levels of policymaking will be linked to the human values, attitudes, and beliefs that set the context for natural resource policy processes.

FW 3313 Sustainability Science	Forest Resources and Environmental Science	UG	Foundational scientific concepts (dynamic systems and catastrophe theory) as applied to socioecological systems. Use of indicators and indices to track progress towards sustainability goals. Review of local, national, and global sustainability policies to avoid catastrophes and guide sustainable development.
FW 3320 Fundamentals of Forest Genetics and Genomics	Forest Resources and Environmental Science	UG	This course will teach fundamental and applied genetic principles that are essential for management of forest and other ecosystems to maintain their long-term health and sustainability. The class will cover the following topics: structure and function of DNA, inheritance, molecular evolution, population and quantitative genetics, gene conservation, genomics and biotechnology.
FW 3410 Conservation Biology	Forest Resources and Environmental Science	UG	Introduction to biological, social, political, and economic facets of conservation biology. Emphasizes evaluation of how best to maintain and restore biodiversity through management of populations and ecosystems. Topics include mass extinctions, global change, loss and degradation of habitat, and over exploitation of biological resources.
FW 3640 Aquatic Ecosystems	Forest Resources and Environmental Science	UG	Students will be introduced to aspects of lake and stream ecosystems. Field trips will focus on sampling abiotic and biotic characteristics of aquatic ecosystems especially in regard to land use and management and conservation. Course held at Ford Center, Alberta, MI.
FW 3760 Human Dimensions of Natural Resources	Forest Resources and Environmental Science	UG	Uses sociological concepts to cover facets of human relationships to natural resources, including human values, beliefs, and attitudes regarding the environment; rural resource-dependent communities; natural resource professions and expert knowledge; and the history of American perspectives on the environment.

FW 3376 Forest and Environmental Management	Forest Resources and Environmental Science	UG	Application of forest and environmental management practices by teams of students with the assistance of faculty, staff and representatives of state, federal and corporate land management groups as well as non-governmental organizations.
FW 3377 Forest and Environmental Resource Management 2	Forest Resources and Environmental Science	UG	Application of forest and environmental management practices by teams of students with the assistance of faculty, staff, and representatives of state, federal, and corporate land management groups as well as non-governmental organizations.
FW 3800 Insect Ecology	Forest Resources and Environmental Science	UG	Insects are widespread and diverse components of terrestrial and aquatic ecosystems. This course will consider aspects of insect ecology, including biodiversity and conservation of insects, the effects of biotic and abiotic factors on insect populations, and the trophic diversity of insects. Course held at Ford Center, Alberta, MI.
FW 4070 How we Talk About Our Earth	Forest Resources and Environmental Science	UG	The Michigan Tech course will feature Ojibwa knowledge holders that will share cultural and ecological knowledge; the College course will feature Michigan Tech knowledge holders that will share social, environmental science, and policy knowledge. The goals are to increase our understanding of the diverse perspectives and practices in our region and to co-create a sustainable partnership between our schools and communities into the future. More than 36 Anishinaabe government entities engage with federal, binational, provincial, and state governments, and universities and colleges, in our region. Students in this course will gain a better understanding of career and higher education opportunities, Ojibwa perspectives and practices, and be better prepared for engaging with and as natural resource and environmental science and policy professionals.

FW 4111 Indigenous Natural Resource Management	Forest Resources and Environmental Science	UG	In Indigenous Natural Resources Management, students will gain knowledge in Indigenous culture, policy, and ethics to enhance their understanding of the rights and privileges associated with treaties, the government-to-government relationship, and the diversity of people, practices, and values within the Great Lakes basin. Students will be introduced to multidisciplinary scholarship with growing relevance for natural resources fields of study and the environmental sciences, and also, practical insights for engaging with Indigenous peoples in today's shared management regime.
FW 4120 Tree Physiology	Forest Resources and Environmental Science	UG	A study of tree structure, growth, development and function, and how these are related to the environment. We will focus on the cycling of water, carbon, and nutrients within the context of global change.
FW 4128 Conservation Genetics	Forest Resources and Environmental Science	UG	This course explores how genetic variation and its loss affect the ability of natural populations to adapt to changing environments. The relevance for the long-term conservation of animal and plant populations is highlighted.
FW 4150 Forest and Natural Resource Management	Forest Resources and Environmental Science	UG	In this course, we discuss concepts of weak and strong sustainability. We cover forest certification systems, that are designed to communicate sustainable management of forest to wood products consumers. We talk about forest and natural resource management planning in terms of what is biologically/ecologically possible, economically feasible, and socially acceptable.
FW 4151 Advanced Timber Harvesting	Forest Resources and Environmental Science	UG	Discuss methods for mitigating environmental impacts during logging operations. We also discuss the economic and social contributions of the forest products industry, in terms of tax revenues and rural jobs. We also discuss the increasing demand for renewable wood products as a substitute for more malignant construction materials. This is in light of climate change policies and the long-term carbon storage in wood products (e.g. furniture, flooring, lumber, etc.).
FW 4180 Ethics of Conservation and Sustainability	Forest Resources and Environmental Science	UG	Discusses relationship between ecological science and environmental ethics as it relates to natural resource management, conversation and sustainability.

FW 4370 Forest and Landscape Hydrology	Forest Resources and Environmental Science	UG	The course will use a process-based approach to present the physical hydrology, geomorphology and water quality of forested watersheds. Course focuses on the interaction between watershed processes and forest management.
FW 4380 Landscape Ecology	Forest Resources and Environmental Science	UG	Mainly focused on environmental sustainability, especially sustainable land use. Basic principles of landscape ecology, including pattern, process, and scale. Students will learn how to use quantitative tools to study landscape-scale patterns and processes, and how to apply these principles and tools to conservation, resource management, and planning issues.
FW 4811Integrated Resources Assessment	Forest Resources and Environmental Science	UG	(combined 4-credits over 2 semesters). Students work on year-long projects that require them to develop a sustainable forest management plan, restoration plan, or other report related to their major and interest.
FW 4830 Integrated Resources Assessment	Forest Resources and Environmental Science	UG	(combined 4-credits over 2 semesters). Students work on year-long projects that require them to develop a sustainable forest management plan, restoration plan, or other report related to their major and interest.
FW 4400 Urban Forestry	Forest Resources and Environmental Science	UG	Urban forestry is the science and art of managing natural resources in communities. It focuses on maximizing the wide range of economic, environmental, and social benefits associated with trees and urban greenspaces while minimizing maintenance costs and reducing tree-related risks.
FW 4401 Urban Forestry Lab	Forest Resources and Environmental Science	UG	The urban forestry field lab is a two-day tour held in Chicago for students to interact with and learn from professionals in the green industry, arboriculture, and urban forestry. It coincides with the Midwest Urban Tree Care Forum in mid-April.
FW 4710 Environmental Biogeochemistry	Forest Resources and Environmental Science	UG	Impacts of decisions regarding landuse, land management, and energy and mineral exploration on natural resources (i.e., air, water, land, and biodiversity) are discussed using the framework of the biogeochemical cycles of the elements.

GE 2100 Environmental Geology	Forest Resources and Environmental Science	UG	Introduction and study of current environmental issues related to the earth sciences. Covers major topics such as volcanism, earthquakes, shoreline erosion, and pollution of groundwater as multi-week modules with associated labs, lectures, and field projects.
GE 4150 Natural Hazards	Forest Resources and Environmental Science	UG	This course focuses on current mitigation agencies and warning systems, case studies of successes and failures in hazard mitigation, and technical tools for hazard study and mitigation such as satellite remote sensing and GIS.
GE 3850 Geohydrology	Geological and Mining Engineering and Science	UG	Geologic and hydrologic factors controlling the occurrence, movement, and development of subsurface water. Quantitative methods for analyzing groundwater systems are introduced.
GE 4220 Environmental Perspectives of Mining Engineering	Geological and Mining Engineering and Science	UG	Develops the scientific basis for environmental management in ecosystems impacted by mining activities. Considers the origin, behavior, and fate of pollutants generated during the life of a mine. Introduces engineered approaches for mitigation, remediation and reclamation of environmental impacts.
GE 4620 Energy Economics	Geological and Mining Engineering and Science	UG	Introduction to the institutional, technical, and economic issues of the production and use of energy resources, including petroleum, natural gas, coal, nuclear, electric utilities, and alternative energy sources. Applies economic analysis to industrial and policy problems of the supply, distribution, and use of energy resources, including environmental and social consequences.
HON 2200 Leadership, Culture and Technology	Pavlis Honors	UG	This course provides students with an understanding of the nature and process of leadership, and an opportunity to assess personal leadership skills/potential and develop a personal model of leadership. Leadership in other cultures and use of appropriate technology will also be explored.

HU 0122 Global Issues Study Team	Humanties	UG	Students who are enrolled in Global Issues (UN1025) may sign up for a study team led by a writing center coach. Teams meet twice weekly. The meetings address the challenges of the Global Issues course as well as develop students' effectiveness working in teams.
HU 3508 Literature and the Environment	Humanties	UG	In this course students examine the interdisciplinary relationship between literature and environmental and ecological studies. Topics to be explored include eco-criticism, eco-feminism, environmental (in) justice, indigeneity, sustainability, and animal studies.
HU 4625 Risk Communication	Humanties	UG	A case-study approach to risk communication, possibly including recombinant DNA research, human population growth, sustainable development, Great Lakes water quality, use of synthetic pesticides, but focusing primarily on climate change.
MEEM 4235 Wind Energy	Mechanical Engineering-Engineering Mechanics	UG	Student will be introduced to the underlying principles of wind energy conversion, including wind turbine design, aerodynamics, construction, control, and operation. The evaluation of concurrent aspects such as wind resource turbine siting, grid integration, and environmental, and social impact will be covered.
MEEM 4240 Combustion and Air Pollution	Mechanical Engineering-Engineering Mechanics	UG	Introduces sources of emissions from combustion, applies thermo-chemical principles to model the formation of pollutants, and identifies impacts of air pollutants on the environment and human health. Addresses pollution regulation and societal impacts including emissions, climate change, and air quality.
MEEM 4685 Environmentally Responsible Design and Manufacturing	Mechanical Engineering-Engineering Mechanics	UG	Examines the impact of engineering and design/manufacturing, decisions on the environment. Topics include sustainability; energy and material flows; risk assessment; life cycles, manufacturing process waste streams, and product design issues, including disassembly and post-use product handling and techniques for pollution prevention.

MET 3500 Manufacturing Processes	Mechanical Engineering Technology	UG	This course introduces the students to different types of manufacturing methods and the discusses the impacts of selecting and using these processes (economically, environmentally and socially). Focuses on practical aspects of design and manufacturing. Covers fundamentals of manufacturing processes and includes a weekly lab to provide hands-on experience with manufacturing issues that influence component design.
MGT 4500 Managing Change in Organizations	Management	UG	Studies organizational theory with an emphasis on managing change in organizations. Examines forces for change in the external environment, methods for managing change (design and implementation), the impact of change on people, and leaders as agents of change. Case studies and student projects prepare the student to manage change in organizations.
MSE 4760 Environmental Engineering for Materials Processing Industries	Materials Science and Engineering	UG	Assessment and analysis of environmental impacts from materials processing industries. Regulations, permits, and industrial practices for monitoring and solving air, water, and solid environmental issues. Pollution prevention. Life cycle analysis. Material flow analysis.
MSE 4777 Distributed Additive Manufacturing Using Open-Source 3-D Printing	Materials Science and Engineering	UG	This course provides an overview of open-source hardware in theory and practice for an introduction to distributed additive manufacturing using open-source 3-D printing. Each student will build a customized RepRap and will learn all hardware and software for maintaining it.
OSM 3150 Intoduction in Supply Chain Management	Operations and Supply Chain Management	UG	An introduction to supply chain management to gain a perspective on integration and coordination issues. Topics include strategy, network design, facility design, sourcing, logistics, forecasting, inventory, relationship management, and global and sustainable supply chain management.
PSY 3800 Environmental Psychology	Psychology	UG	Psychological effects of the physical environment and effects of human action on the sociophysical environment, including an examination of global environmental issues and ecologically-relevant behavior.

SS 2300 Environment and Society	Social Sciences	UG	Examines social approaches to understanding why environmental problems happen and how environmental problems are resolved. Includes concepts such as sustainability, market-based environmental policies, property systems, and environmental justice. Case studies may include biodiversity, deforestation, climate change, water quality, and toxics.
SS 2400 Introduction to Human Geography	Social Sciences	UG	This course introduces students to concepts, problems, and case studies that make up the study of human geography: the spatial differentiation and organization of human activity, environmental sustainability, and the role of space and place in our everyday lives.
SS 2700 Introduction to Sociology	Social Sciences	UG	This course covers Environmental Sociology (understanding coupled human-environment relationships). Introduces students to the way that sociologists think about different components of society. Topics include the family, religion, markets, organizations, political systems, and educational systems. Also covers the source of individual values, beliefs, and attitudes.
SS 3110 Food Systems and Sustainability	Social Sciences	UG	Compares the embedded nature of culturally defined food production and consumption habits: the crux of nature meeting and mixing with culture. The course features classic food system scholarship as well as emerging topics and contemporary case studies.
SS 3313 Sustainability Science	Social Sciences	UG	Foundational scientific concepts (dynamic systems and catastrophe theory) as applied to socioecological systems. Use of indicators and indices to track progress towards sustainability goals. Review of local, national, and global sustainability policies to avoid catastrophes and guide sustainable development.

SS 3315 Population and the Environment	Social Sciences	UG	This course investigates relationships between the world's population, population change, population distribution, resource consumption, and environmental and social consequences. Addresses local and global relationships and the population processes (mortality, fertility, and migration) involved. this course focuses on sustainability in large part- it includes social, environmental and economic dimensions. Very much global in context.
SS 3240 Reading the Landscape: Anthropology, Geography, History	Social Sciences	UG	Landscape is a lens through which scholars study people, environment, and place. The concept transcends traditional disciplinary boundaries. Students will read and discuss different approaches to landscape, with special focus upon anthropological, geographic, and historical perspectives.
SS 3280 Anthropology of Energy	Social Sciences	UG	Examines energy and its role in culture & human society from the 19th century to the present. Case studies from around the world are used to expore energy infrastructure, consumption, and technology and its role in culture and human society. Approach is historical and comparative across disciplines emphasizing the different modes of explanation.
SS 3300 Environmental Problems	Social Sciences	UG	An examination of local, regional, and global contemporary environmental problems. Critical consideration of underlying social, historical, and economic causes. Case studies drawn from topics such as global warming, ozone depletion, groundwater pollution, solid waste disposal, deforestation, and resource depletion. Studies proposed solutions and their impacts.
SS 3410 World Resources and Development	Social Sciences	UG	Examination of the human geography and resources of various world regions. Emphasizes factors affecting prospects for development, including population dynamics, natural resource endowment, social and cultural systems, and spatial structure of society. Case studies of individual countries supplement general concepts and theories.

SS 3520 US Environmental History	Social Sciences	UG	Examines how human interaction with physical environment has changed in North America over the last four centuries. Topics include uses of land by Native Americans, changes associated with European colonization, incorporation of natural resources into industrial economy, early conservation and preservation movements, and environmental concerns accompanying urbanization and industrialization.
SS 3521 Energy in American History	Social Sciences	UG	Examines changes in energy use throughout American history, beginning with energy use by American Indians and Europeans during colonial settlement and continuing through fossil fuels and adoption of nuclear power. Helps students see energy in all we do.
SS 3630 Environmental Policy and Politics	Social Sciences	UG	A broad survey of how environmental policy making actually works in the U.S. Covers both environmental policy processes and politics, and the major environmental policies themselves for control of air pollution, water pollution, hazardous wastes, and other major environmental problems.
SS 3760 Human Dimensions of Natural Resources	Social Sciences	UG	Uses sociological concepts to cover facets of human relationships to natural resources, including human values, beliefs, and attitudes regarding the environment; rural resource-dependent communities; natural resource professions and expert knowledge; and the history of American perspectives on the environment.
SS 3800 Energy Policy and Technology	Social Sciences	UG	This course examines the policies and technologies affecting the production, transportation, and use of energy. It focuses on U.S. domestic energy policy and places it in the context of the global energy system. The course aims at providing a holistic view of energy systems connecting technological options with societal and environmental
SS 3801 Science, Technology and Society	Social Sciences	UG	Examines the relationship between science, technology, society, and the environment. Topics may include effects of technologies such as computers, biotechnology, and chemicals on society and nature, science and technology policy, and the history of technology and its global consequences.

SS 3805 Environmental Justice	Social Sciences	UG	This course focuses on the histories, theories, and practices of environmental justice in local, national, and global contexts. Topics to be explored include environmental racism, industrial facility siting, sustainable development, as well as food, energy, and climate justice.
SS 3811 Energy Security and Justice	Social Sciences	UG	This course focuses on concepts that are fundamental to energy policy: energy security and energy justice. It introduces students to the three main views of energy security (supply, demand, and energy services). In addition, the course provides a critical perspective of evaluating energy decision-making through the lenses of justice.
SS 3815 Energy and Society	Social Sciences	UG	This course reviews extent that our lives are integrated with energy production and consumption, and related problems and solutions in our interwined energy and social systems.
SS 3900 Energy Transitions	Social Sciences	UG	This course dives into the ongoing sociotechnical transformation of the global energy system, the Grand Energy Transition. Driven largely by considerations over environmental degradation and climate change in particular, the transition is premised on a systemic shift from fossil fuels to low-carbon energy sources. The course treats the energy transition concept in a holistic and comprehensive manner exploring decarbonization of the energy sector as a complex change in global, national and sub-national technical and technological, as well as social, economic, and political systems

SS 4390 Seminar in Sustainability	Social Sciences	UG	This seminar in sustainability topics will cover a rotating set of topics, depending on semester offereing. Topics may inclued energy use, justice, pollution, green design, or regulations bearing on sustainability. Seminar in Sustainability Issues: Renewable Energy and Alternative Fuels. This seminar in sustainability topics will cover a rotating set of topics, depending on semester offering. Topics may include energy use, justice, pollution, green design, or regulations bearing on sustainability. In Spring 2018, the course will explore one pathway of achieving sustainability – energy obtained from renewable sources.
SS 4325 Water Policy and Governance	Social Sciences	UG	This seminar in sustainability topics will cover a rotating set of topics, depending on semester offereing. Topics may inclued energy use, justice, pollution, green design, or regulations bearing on sustainability.
SS 4540 Global Environmental History	Social Sciences	UG	This course explores changes in human interactions with earth systems over time, starting with the development of agriculture and continuning to the present. Case studies include mining, forestry, water, agricultural, sustainability, and urban development.
SS 4700 Communities and Research	Social Sciences	UG	A rural sociology course analyzing the sustainability of rural communities (socially, environmentally, economically, and culturally). The course involves participatory research conducted together with a local community organization. Students practice research skills while making a difference in improving community life. this course is focused on sustainable development for rural communities. It is primarily focused on social and economic sustainability but also includes environmental and energy dimensions. We do a community engaged research project aimed at empowering members of high poverty local community. Includes advanced undergrads and grads.

SS 4630 Advanced Reserach in Social Science	Social Sciences	UG	Capstone course for students to develop an original social science thesis researcy project in the areas of Politics, Law, Sociology, or Sustainability. Students will prepare a proposal for a senior research project.
SS 4380 Lanscape Ecology and Planning	Social Sciences	UG	Basic principles of landscape ecology, including pattern, process, and scale. Students will learn how to use quantitative tools to study landscape-scale patterns and processes, and how to apply these principles and tools to conservation, resource management, and planning issues.
UN 1025 Global Issues	University Wide	UG	Study of contemporary global issues, their origins, impacts, and solutions through the thematic and comparative exploration of worldview and culture, population, globalization, development, politics and global governance, environment, and sustainability. Emphasis on global literacy and information literacy.
UN 4400 Climate Science and Policy	University Wide	UG	An interdisciplinary discussion-format course covering the basic science of climate change and the development of international climate policy. Includes an analysis of policy targets in their scientific context and links to global sustainable development goals. Additional topics will be guided by the interests of the class and current events.
BA 5610 Operations Managemnet	Business	GR	Applications and case studies focusing on contemporary issues in operations and quality management to include lean manufacturing practices, ERP, quality and environmental management systems/standards, Six Sigma, statistical process control, and other current topics.
BA 5780 Managing the Global Environment	Business	GR	Course topics may include the following: impact of international political, economic, technological, and social environment forces, currency risks, cross- cultural management issues, strategic challenges for multinational companies, and international joint ventures and alliances.

BL 5120 Environmental Remeditation	Biological Sciences	GR	Toxicology of major environmental pollutants, their dose-response relationships and fundamentals of environmental remediation. Topics include physical, chemical, and biological remediation methods and effect of environmental toxins on biological systems. Laboratory will involve the application of chemical and biological remediation techniques.
BL 5461 Ecosystem Ecology	Biological Sciences	GR	History, key concepts, and practice of ecosystem ecology in aquatic and terrestrial environments. Emphasizes inter-connectedness of energy and nutrient flows globally and in regional case studies.
CEE 5109 Sustainable Pavement Engineering and Civil Engineering Materials	Civil and Environmental Engineering	GR	This class will develop fundamental knowledge of sustainable pavements, recycled materials, asphalt and concrete materials, basic concept of characterization of pavement materials, data analysis, and basic modeling procedures. The course will cover a wide range of advanced knowledge of sustainable pavements and materials.
CEE 5350 Infrastructure Life Cycle Engineering	Civil and Environmental Engineering	GR	The course examines how life cycle assessment (LCA), life cycle costing analysis (LCCA), green rating systems, value engineering and alternative project delivery systems influence design decisions and project outcomes. Topics will be discussed within the context of the underlying scientific principles and relevant standards.
CEE 5508 Global Biogeochemistry	Civil and Environmental Engineering	GR	This course gives an overview of important biogeochemical processes occurring in land, air, and water. An emphasis is put on modeling as an integrating tool.
CEE 5509 Transport and Transformation of Organic Pollutants	Civil and Environmental Engineering	GR	Assessment of factors controlling environmental fate, distribution, and transformation of organic pollutants. Thermodynamics, equilibrium, and kinetic relationships are used to quantify organic pollutant partitioning and transformations in air, water, and sediments. Use of mass balance equations to quantify pollutant transport.

CEE 5521 Bioremediation Engineering	Civil and Environmental Engineering	GR	Introduction to the microbiological and engineering fundamentals of bioremediation. Topics include relevant microbial biochemistry, physiology, and ecology; necessary site data; design and operation of current and emerging bioremediation systems; monitoring methods for bioremediations projects; and technical evaluation of selected case studies.
CEE 5515 Atmospheric Chemistry	Civil and Environmental Engineering	GR	Study of the photochemical processes governing the composition of the troposphere and stratosphere, with application to air pollution and climate change. Covers radical chain reaction cycles, heterogeneous chemistry, atmospheric radiative transfer, and measurement techniques for atmospheric gases.
CEE 5630 Advanced Hydrology	Civil and Environmental Engineering	GR	Students will understand hydrologic processes such as transpiration, evaporation, infiltration, base flow, and surface runoff. Students will learn principles of hydrometeorology, principles of sustainability applied to surface water resources, how to collect/analyze hydrologic data, and how to predict/estimate hydrologic responses.
CEE 5640 Stormwater Management and Low Impact Development	Civil and Environmental Engineering	GR	Design techniques for stormwater collection, conveyance, infiltration, and detention storage systems are discussed, both traditional stormwater management systems and newer approaches based on the philosophy of low impact development (LID) that seek not to alter the natrual ecology of a site.
CEE 5666 Water Resources Planning and Management	Civil and Environmental Engineering	GR	Economic and environmental aspects of water use. Topics include flood damage reduction, water demand and hydrologic forecasting, water supply planning, and water resource systems operation.

CEE 5993 Engineering with Developing Communities	Civil and Environmental Engineering	GR	Study of applying appropriate, community-based, and sustainable engineering in developing communities. Concepts of human-centered design and sustainable development are covered. Topics are drawn from several areas of engineering, including water and wastewater treatment, construction materials, solid waste, energy, and information systems.
CEE 5997 Natural Resources Engineering Field Service	Civil and Environmental Engineering	GR	This course provides a supervised field experience in natural resources engineering and community development.
CH 5515 Atmospheric Chemistry	Chemistry	GR	Study of the photochemical processes governing the composition of the troposphere and stratosphere, with application to air pollution and climate change. Covers radical chain reaction cycles, heterogeneous chemistry, atmospheric radiative transfer, and measurement techniques for atmospheric gases Covers climate change.
CM 5770 Analytical Microdevice Technology	Chemical Engineering	GR	Course will provide background in micro/nano-scale technologies for biomedical diagnostic applications. Includes theoretical and experimental advances in chemical, mechanical, optical, and biological analysis. Reading of news and technical articles will develop skills/knowledge to envision microdevice applications for a semester-long project which students taking this course will be leading.
EC 5620 Energy Economics	Economics	GR	Introduction to the institutional, technical, and economic issues of the production and use of energy resources, including petroleum, natural gas, coal, nuclear, electric utilities, and alternative energy. Research project applies economic analysis to supply, distribution, and use of energy resources, including environmental and social consequences.
EC 5640 Natural Resource Economics	Economics	GR	Analyzes the economic aspects of producing/using natural resources. Nonrenewable resources and renewable resources are discussed. The economics of land use, macroeconomic topics such as economic growth, sustainability and green accounting are considered.

EC 5650 Environmental Economics	Economics	GR	Considers the efficient and equitable use of environmental resources. Measures the benefits and costs of decreasing pollution and protecting scarce ecological resources; addresses market failures and the economic valuation of environmental amenities. Requires students to learn quantitative and technical techniques to determine the efficient use of resources.
ED 5560 Ecology of Isle Royale for Educators	Education	GR	K-12 teachers participate in a field-based camping experience on Isle Royale National Park, exploring basic ecological concepts regarding the interraletedness of plants, animals, geology, climate, and human influences on Isle Royale. Prepares teachers to help students understand interrelationships, energy distribution in ecosystems and change over time.
ED 5640 Science Education	Education	GR	A course for the professional development of professional K-12 educators. Topics address ideas, trends, and applications in the teaching and learning of environmental science.
ED 5641 Global Change Institute for Teachers	Education	GR	This course will provide teachers with the skills necessary to engage middle/high school students in real-world study of global climate change and its effects on ecosystems. National Content Standards for mathematics, and life, earth, and physical sciences will be addressed.
EE 5260 Wind Power	Electrical and Computer Engineering	GR	Wind turbines are the fastest growing segment of the generator mix being added to power systems today. There is a growing need to understand the many issues caused by these additions. This course covers the theoretical background, regulations, integration experience, and modeling.
EE 5490 Solar Photovoltaic Science and Engineering	Electrical and Computer Engineering	GR	Solar photovoltaic materials, the device physics of photovoltaic cells and practical applications of solar electric systems engineering.

ENG 5400 Engineering Applications in the Life Sciences	Engineering Fundamentals	GR	Students will gain hands-on experience linking engineering technologies to the biological sciences. Participants will visit labs and field sites at Michigan Tech to observe and participate in current research. Topics covered include biofuels, environmental restoration, environmental toxins, and ecosystem measurement.
ENG 5510 Sustainable Futures 1	Engineering Fundamentals	GR	Covers introductory and intermediate concepts of Sustainable Development. Explores methods/tools for assessing sustainability (economic, environmental, societal impacts) of current and emerging industrial technologies. Explores relationships between government policies and markets for introducing sustainable technologies into national economies and corporations.
ENG 5520 Sustainable Futures 2	Engineering Fundamentals	GR	Covers sustainability in developed and developing countries. Topics include policy analysis, regulatory impact & cost benefit analyses, trade & markets, laws & regulations, international disasters, GIS applications, green manufacturing, and evolution of environmental policy in U.S. and other countries.
ENG 5540 Sustainable Forest Based Biofuel Pathways	Engineering Fundamentals	GR	This course provides an integrated multidisciplinary education in forest-based biofuel; forest biomass production, conversion by pyrolysis, catalytic upgrading, and vehicular combustion. Sustainability topics will include government biofuel policy, community impacts, techno-economics, and life cycle environmental impacts, with use of software.
FW 5021 Forest Certification	Forest Resources and Environmental Science	GR	Reviews the history and application of the four major certification programs applicable to forests in the United States: Forest Stewardship Council (FSC); Sustainable Forestry Initiative (SFI); American Tree Farm System (ATFS); and Programme for the Endorsement of Forest Certification (PEFC). Prior knowledge of forest ecology is helpful.

FW 5100 Advanced Terrestrial Ecology	Forest Resources and Environmental Science	GR	Structure and function of terrestrial ecosystems, focusing primarily on upland forests. Roles of climate, population structure, competition for above and belowground resources, natural disturbance, management, and global change on ecosystem community composition, succession, carbon exchange, productivity, and nutrient cycling.
FW 5115 Restoration Ecology	Forest Resources and Environmental Science	GR	Study the tools, challenges, and philosophical underpinnings associated with ecological restoration. Restoration of forest, grassland, and wetland communities (plant and animal) will be discussed.
FW 5180 Ethics of Consrevations and Sustainability	Forest Resources and Environmental Science	GR	Discusses relationship between ecological science and environmental ethics as it relates to natural resource management, conservation and sustainability.
FW 5340 Population Genetics and Applied Forest Genetics	Forest Resources and Environmental Science	GR	The course highlights populations genetic topics and deals with the effects of evolutionary factors on genetic diversity. The relevance of genetic variation patterns for the future management and conservation of forests is stressed. Quantitative methods in population genetics are presented.
FW 5368 Forest Ecophysiology	Forest Resources and Environmental Science	GR	Exploration of both classic and cutting-edge literature on the mechanistic aspects of tree and forest ecosystem function. Emphasis on the interactions between canopy structure, carbon flux, nutrient cycling, and water uptake in the context of global change.
FW 5376 Advanced Forest and Environmental Resource Management 1	Forest Resources and Environmental Science	GR	Application of forest and environmental management practices and topical investigations by teams of students with the assistance of faculty, staff and representatives of state, federal and corporate land management groups as well as non-governmental organizations.
FW 5377 Advanced Forest and Environmental Resources Management 2	Forest Resources and Environmental Science	GR	Application of forest and environmental management practices and topical investigations by teams of students with the assistance of faculty, staff and representatives of state, federal and corporate land management groups as well as non-governmental organizations.

FW 5400 Advanced Conservation Biology	Forest Resources and Environmental Science	GR	Introduction to biological, social, political, and economic facets of conservation biology. Emphasizes evaluation of how best to maintain and restore biodiversity through management of populations and ecosystems. Topics include mass extinctions, global change, loss and degradation of habitat, and over exploitation of biological resources.
FW 5421 Climate Change and Management in Great Lakes Forested Regions	Forest Resources and Environmental Science	GR	Provides an overview of climate change science, effects and adaptation for natural resource management in the Great Lakes region. Students develop climate change adaptation plans for real world forested ecosystem examples and learn how to communicate these climate change projects and plans with stakeholders.
FW 5510 Special Topics in Natural Resources	Forest Resources and Environmental Science	GR	Special Topics Course "Socio-ecological Systems" 1-credit. In this graduate seminar course, we read and discussed foundational papers with regards to sustainability, and the consideration of human and natural systems as an integrated system.
FW 5517 Soil Biogeochemistry	Forest Resources and Environmental Science	GR	Study of the relationship between soil composition and the circulation of major elements through the earth system. Responses of biogeochemical cycles of the elements in agricultural, forest, grassland, and wetland soils to changes in land use, biodiversity, nutrient supply, plant stressors, and climate change will be discussed.
FW 5519 Atmospheric Biogeochemistry	Forest Resources and Environmental Science	GR	Study of the relationship between atmospheric composition, global change, and the circulation of major elements through the Earth system. Responses of ecosystem emissions to changes in landuse, biodiversity, nutrient supply, plant stressors, and climate change are discussed.
FW 5540 Remote Sensing of the Environment	Forest Resources and Environmental Science	GR	Remote sensing principles and concepts. Topics include camera and digital sensor arrays, types of imagery, digital data structures, spectral reflectance curves, applications, and introductory digital image processing.

FW 5560 Digital Image Processing: A Remote Sensing Perspective	Forest Resources and Environmental Science	GR	Presents the theory and quantitative procedures of digital image processing using remotely sensed data. Emphasizes image acquisition, preprocessing, enhancement, transformation classification techniques, accuracy assessment, and out-products. Discusses linkages to GIS. Also covers evaluating applications of the technology to current resource management problems via peer-reviewed literature.
FW 5400 Advanced Conservation Biology	Forest Resources and Environmental Science	GR	Introduction to biological, social, political, and economic facets of conservation biology. Emphasizes evaluation of how best to maintain and restore biodiversity through management of populations and ecosystems. Topics include mass extinctions, global change, loss and degradation of habitat, and over exploitation of biological resources.
GE 5995 Domestic Geological Practicum	Forest Resources and Environmental Science	GR	Project course for students serving in a U.S. based service activity for one or more semesters. The service activities pertain to community development in the context of geological resource development, restoration, or protection or geological hazard mitigation.
GE 5970 Special Topics in Global Environmental Change	Geological and Mining Engineering and Science	GR	Course will focus on emerging topics on global environment change including changes in atmospheric composition and air quality, air pollution meteorology, extreme meteorological events, and ocean chemistry. Anthropogenic contributions to these changes will be presented and analyzed. Students will work on course projects based on historical records from multiple datasets to evaluate and appreciate the long-term changes in the global environment and better understand the perturbations due to human activities.

HU 6115 Communication & Climate Change (Special Topics in Technical Communication)	Humanties	GR	Despite the overwhelming consensus among climate scientist, a 2014 study found that 35 percent of Americans still believe that global warming is caused mostly by natural phenomena, and a 2016 study found that 30 percent of U.S. middle school and high school science teachers are teaching their students that climate change is likely caused by natural phenomena. Consequently, one author has claimed that that climate change is “probably the largest science communication failure in history.”
MEEM 5235 Wind Energy	Mechanical Engineering-Engineering Mechanics	GR	This course introduces students to the underlying principles of wind energy conversion, with an emphasis on the theoretical aspects of wind turbine design, aerodynamics, construction, control, and operation.
MEEM 5225 Advanced Power System and Pollution Control	Mechanical Engineering-Engineering Mechanics	GR	Course will cover stationary systems for industrial and power applications; will include coal power plants, open-and combined-cycle gas turbines, co-generation, post combustion pollution control, biomass based fuels for power generation, and economic considerations.
MEEM 5290 Principles of Energy Conversion	Mechanical Engineering-Engineering Mechanics	GR	Introduces fundamentals of energy conversion and storage. Topics inclues fossil and nuclear fuels, thermodynamic power cycles, solar energy, photovoltaics, and energy storage. Students will apply energy economics and complete semester- long project.
MEEM 5685 Environmentally Responsible Design and Manufacturing	Mechanical Engineering-Engineering Mechanics	GR	Examines impact of engineering and, in particular, design/manufacturing decisions on the environment. Topics include sustainability; energy/material flows; risk assessment, life cycles, manufacturing process waste streams, product design issues, including disassembly/post-use product handling; techniques for pollution prevention.

MEEM 5655 Introduction to Lean Manufacturing	Mechanical Engineering-Engineering Mechanics	GR	Lean manufacturing is emerging globally as a paradigm by which business units must function to be globally competitive. Quality, cost, and delivery have become critical measures that impact profits and, in turn, the success of an organization. Significant improvements in all these three measures come from the continuous elimination of waste, or non-value added activities, in manufacturing. Numerous tools are available for the elimination of waste and making businesses lean. This course is intended to familiarize students with this new philosophy of lean manufacturing and arm them with a basic toolset that enables the identification, measurement, and elimination of non-value added activities.
MSE 5440 Materials Recycling: Processing and Utilization	Materials Science and Engineering	GR	Methods for materials recycling is the emphasis. Topics include the recycling of materials for steel, aluminum, automobile, foundry, glass, plastics, energy, construction, and other industries. Background of the industry, characteristics of materials, materials flow, and the processing and utilization methods to recycle the materials are presented.
MSE 5777 Advanced Open Source 3-D Printing	Materials Science and Engineering	GR	An introduction to distributed additive manufacturing using open-source 3-D printing. Design, use, and maintenance of open-source electronics and self- replicating rapid prototypers (RepRap). Graduate students will be expected to complete coursework and an in-depth project. This course contains a large module on open source appropriate technology for sustainable development.
SS 5300 Environmental and Natural Resources Policy	Social Sciences		An overview of environmental and natural resource policies in the U.S. and internationally. Emphasizes policies regarding forests, wildlife, public lands, pollution, and climate change. Dicussion of policy adminstration by the USDA Forest Service and National Park Service

SS 5310 Ecological Economics	Social Sciences	GR	Ecological economics starts with a preanalytical vision that the economy is a sub- system of the Earth's ecological systems. Foundational topics include examination of the optimal scale of the economy, efficient allocation of resources, and the equitable distribution of resource flows.
SS 5313 Sustainability Policy	Social Sciences	GR	Foundational scientific concepts (dynamic systems and catastrophe theory) as applied to socioecological systems. Use of indicators and indices to track progress towards sustainability goals. Review of local, national, and global sustainability policies to avoid catastrophes and guide sustainable development.
SS 5315 Population and Environment	Social Sciences	GR	This course investigates relationships between the world's population, population change, population distribution, resource consumption, and environmental and social consequences. Addresses local and global relationships and the population processes (mortality, fertility, and migration) involved. focuses on social, environmental, and economic sustainability in global context.
SS 5320 Special Topics in Environmental Policy	Social Sciences	GR	An intensive, student-led seminar focused on environmental and sustainability policy issues at local, regional, or global scales. Topics may include climate change, pollution, sustainable agriculture or development, environmental justice, globalization, or other current topics. May be repeated if topic differs.
SS 5325 Water Policy History and Governance	Social Sciences	GR	This seminar will explore the global history, politics, and governance of freshwater resources. Topics will include the effects of forestry, mining, watershed management, sanitation systems, privatization, climate change, fisheries, emerging contaminants, and agriculture on water systems and policies.
SS 5330 Advanced Topics in Energy Policy	Social Sciences	GR	An intensive student-led seminar focused on energy policy issues at local, regional, or global scales. Topics may include climate change, renewable energy, energy efficiency, nuclear wastes, and government mandates. May be repeated if topic differs.

SS 5400 Sociology of the Environment	Social Sciences	GR	Provides students with an introduction to basic sociological concepts as they apply human relationships to the environment. Topics include social values, organizations, norms, ideologies, and political systems. Themes will include the relationship of expertise to lay knowledge, public participation, and urban-rural relationships.
SS 5550 Global Environmental History	Social Sciences	GR	Examines changes in human interactions with earth systems over time, starting with the development of agriculture and continuing to the present--with flows of material through economies and ecologies now intertwined in complex ways. Places the notion of sustainability in historical perspective.
SS 5635 International Environmental Policy	Social Sciences	GR	This course delves into the international law associated with environmental issues. Students begin with the treaty language and associated jurisprudence (if any) and then study how the treaty was negotiated, adapted by national governments, and used in political discourse.
SS 6100 Advanced Seminar in Energy and Climate Policy	Social Sciences	GR	This course aims to provide a holistic view of energy systems connecting technological options with societal needs and environmental concerns. It considers presently prevalent fossil-fuel sources and technologies, and explores the reasons and pathways of transitioning to a more diversified, environmentally benign, and socially equitable and secure energy mix.
UN 5100 Water and Society Colloquium	University Wide	GR	Seminar based class covers current topics in water resources. Objectives: build towards a common literacy on water resources issues; identify areas of common interest among students and faculty in water resources topics.
UN 5400 Climate Science and Policy	University Wide	GR	An interdisciplinary discussion-fornat course covering the basic science of climate change and the development of international climate policy. Includes an analysis of policy targets in their scientific context and links to global sustainable development goals. Additional topics will be guided by the interests of the class and current events.